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# USSR Report

## AGRICULTURE

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MAJOR CROP PROGRESS AND WEATHER

## GRAIN HARVESTING PROGRESS IN PAVLODAR OBLAST REPORTED

Moscow PRAVDA in Russian 5 Sep 84 p 1

[Article by PRAVDA correspondent Yu. Razgulyayev in Pavlodar Oblast: "The Winner Began First"]

> [Text] Pavlodar Oblast farmers in the Irtysh region are now harvesting their second million hectares of grain. They are making every effort to live up to their initial precept, which is to bring in the harvest without significant losses.

As in past years, Pavlodar growers are placing much emphasis on crops raised for groats. Even if they were not, they would still have the largest number of hectares in the republic sown to millet and buckwheat. And now, they are increasing it by another 3500 hectares. The best results are being turned in by the contract collectives. No less than 3000 tons of grain were harvested for sale by millet growers on the Belogorskiy sovkhoz in Mayskiy Rayon. They are already close to fulfilling their quota commitments.

On the heels of the southerners, the heaviest grain-producing rayons of the oblast--Irtyshskiy, Zhelezinskiy and Kachirskiy--begin their harvesting work. They are faced with the task of harvesting hundreds of thousands of hectares of wheat. A considerable area is devoted to raising the high-grade and hard varieties.

"Farmers in the oblast plan to sell 742,000 tons of grain to the state," we are told by obkom party secretary O. Shikhaleyev. "For us, this is a major breakthrough. There are great difficulties involved, not only in harvesting such an amount of grain, but in shipping it as well. Efficient transportation of harvested grain relies heavily on the strength of the labor force, the utilization of progressive techniques and the application of proven methods."

Almost all of the farms successfully employ the tandem-trailer and batch-output methods for grain shipments. Such methods have called for the establishment of 160 specialized brigades, and have required that every motor vehicle be equipped with three or more trailers. Thirteen detachments, representing a total of almost 500 large-capacity vehicles, will transport the grain from threshing houses to the elevators.

The harvesting is proceeding at rapid pace on many of the farms of Pavlodar Oblast. Farms in Lebyazhinskiy Rayon, for instance, have already harvested three fourths of the entire area under cultivation. Things are going smoothly on the farms in Yermakovskiy and Uspenskiy rayons. But, problems did crop up at the start of harvesting. In some places, they had forgotten about the "logistics" of the effort. This resulted in part of the drying equipment not being ready when it was supposed to be. In a number of places, equipment is malfunctioning due to poor maintenance. For example, as of this writing, dozens of harvesting machines are still out of service on certain farms in Shcherbaktinskiy and Kachirskiy rayons. In addition, half of the vehicles at the Tselinnyy sovkhoz in Yermakovskiy Rayon and the Veselaya Roshcha sovkhoz in Zhelezinskiy Rayon are in need of repair.

To harvest as much mature grain as possible, while holding losses to a minimum, and to fulfill the plans with respect to grain sales--these are the goals toward which farmers of the Irtysh region are striving.

9481
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MAJOR CROP PROGRESS AND WEATHER REPORTING

## WORK OF MOLDAVIAN SCIENTIFIC PRODUCTION ASSOCIATIONS DISCUSSED

Moscow PRAVDA in Russian 16 Jun 84 p 1

/Article by S. Arnaut, general director of the Gibrid Scientific Production Association, Moldavian SSR: "Coordinating Field Operations"/

/Text/ I recall a conversation which I had sometime ago with a kolkhoz chairman. He proudly discussed a yield of 30 quintals. He was awaiting praise while for my part I mentioned that corn should furnish a minimum of twice this amount.

"How can this be done in the absence of irrigation?" questioned the chairman somewhat offended, "As yet, not one of our neighbors has achieved this level. And if you have done so at the institute, then it is quite another matter. A plot is still not a field. Provide us with a variety which has twice the productivity and then come and talk to us."

At the time, a new variety would not have helped the farm. Full use was not being made there of the old variety. But the chairman was correct in one respect. A very weak link existed between a plot at the institute and the fields.

The motto of science -- to obtain two stalks where earlier only one grew -- serves as a guide not only for the plant breeders. There are many new varieties and at the same time there are not always enough of them. Importance is attached to accelerating the creation of these varieties. But at the same time more rapid use must be made of the potential of those already created. And this can be achieved provided science and production work together as the saying goes. The organizational and economic forms for such integration have been found. They are found in the form of scientific production associations.

They were created 10 years ago in the principal branches of the agroindustrial complex and they are making a notable contribution towards the development of agriculture. And the fact that the production of goods at kolkhozes and sovkhozes throughout the republic has increased by 17 percent compared to the average annual level for the 10th Five-Year Plan is in large part the result of work performed by NPO /scientific production association/ collectives.

There are 12 of them in Moldavia. The associations participate in the breeding and propagation of new varieties, hybrids and animal strains and they develop

industrial technologies and all-round systems for controlling the quality of labor and output.

Thus, our Gibrid NPO coordinates the work associated with intensifying the production of corn and sorghum. In addition to the scientific research institute, the association includes five sovkhozes and a large seed plant. This structure encompasses an entire complex of operations -- from the carrying out of breeding and genetic studies to the packaging in bags of seed that is ready for sowing.

Today it is appropriate to mention some of the operational results achieved by the association. Eight new corn hybrids and one sorghum variety have been regionalized. They are being grown on more than 85 percent of the republic's sowing areas.

The association has also been tasked with creating early ripening corn hybrids for the country's more northern regions. Some of these new developments have already undergone testing in the Ukraine, Belorussia and the Russian Federation. For example, the Moldavskiy 251 hybrid has been regionalized in Ivano-Frankovsk and Vinnitsa oblasts. The Moldavskiy 257, 258 and 330 hybrids appear to be very promising for other oblasts. Last autumn, 105 quintals of corn grain were obtained from each of 500 hectares at a sovkhoz technical school in Kakhovskiy Rayon in Kherson Oblast. Our new varieties and hybrids also produced fine yields on other farms in this rayon.

The concentration of primary seed production was carried out as a result of efforts put forth by the Moldavian association. Earlier there were 12 farms representing five different departments. Today there is only the NPO. The requirements of the republic's seed growers are being satisfied completely and the quality of the seed has improved.

But what about the industrial technology? We are devoting a great amount of attention to introducing it into operations. As is known, the mechanized detachment of Hero of Socialist Labor and deputy to the USSR Supreme Soviet S. Parmakli was the first to employ this technology. Today the technology has been improved and it has advanced beyond the borders of the republic. It is already in use on 3 million hectares. Since 1980, corn has been cultivated in Moldavia using only the industrial technology. During this period the average yield increased by 10.3 quintals. The elimination of manual operations reduced the annual expenditures of labor by 3.5 million man-days.

Following the creation of the association, many changes have also been implemented in commodity seed production. It has been converted over to an industrial basis. Interesting experience has been accumulated in Faleshtskiy Rayon. Here the hybridization plots are located around the Reutselskiy Corn Grading Plant. The shipping distance has been decreased twofold. Transport expenses have declined, the harvesting periods have been shortened and the quality of the product has improved. Last year, approximately 8,000 tons of seed for simple 1st generation hybrids were procured here. One rayon provided more than enough seed for the entire republic.

The experience accumulated by the workers in Faleshtskiy Rayon will also be employed in other areas -- where there are already corn grading plants or where such facilities are under construction. At the present time, Moldavia is

supplying approximately 60,000 tons of seed for 1st generation corn hybrids -- for sowing on an area of 3 million hectares. Almost two thirds of this seed is being delivered to other oblasts and republics.

It would seem that the work being performed by the NPO is of an applied nature. But it is based upon the fundamental achievements of domestic and foreign science. We have established close relationships with the research institutes of the republic's Academy of Sciences, the All-Union Scientific Research Institute of Corn, the All-Union Plant Breeding and Genetics Institute and with many scientific centers of fraternal republics and socialist countries. The NPO is a participant in the European Association for Plant Breeding and it also represents our country in other international scientific organizations.

The achievements already realized must not be viewed as an excuse for complacency. To the contrary, they clearly outline some defects and neglected opportunities. The return from the corn plantations can and must be considerably greater. By no means are the requirements of the industrial technology being observed in all areas. Industry often violates the schedules and volumes for pesticide and mineral fertilizer deliveries.

The irrigated areas are being expanded throughout the republic. Thus science is being confronted by new concerns. The institute's scientists are developing models for programmed yields under irrigation conditions. Measures are being undertaken aimed at ensuring that each irrigated hectare furnishes no less than 100 quintals of corn grain.

Is this realistic. Completely so. And it is particularly realistic if the work is being carried out by brigades and teams which have converted over to the collective contract. This method is based upon interest on the part of the personnel in accurately fulfilling all of the technological requirements. This also includes the yields. Many contractual collectives are obtaining an average of 110-120 quintals of grain from their irrigated lands.

Increases are taking place in the yields even under non-irrigation farming conditions. Thus the mechanized contractual team of V. Andriyesh in Brichanskiy Rayon and the detachment of G. Tamazlykar' in Sorokskiy Rayon obtained 86-87 quintals of corn from each hectare.

Many such examples could be cited. But how can they be made the rule? Here there are many problems. Let us take the problem of supplying the system with more improved machines. As a system, it still does not exist. Tractors, as such, are fine. But heavy "wheeled" units should not be employed out on the corn fields, especially during the spring. The soil becomes too strongly packed and a deterioration takes place in its properties. And as a rule this results in a 10-20 percent shortfall in yield. The issuing of appropriate technologies for caterpillar tractors must be accelerated.

The corn growers are not satisfied with the machines that are available for applying fertilizers and herbicides. And the harvest equipment leaves much to be desired. On the seed plots, the combines permit losses of up to a ton of grain per hectare.

Quite often the herbicides turn out to be ineffective. The chemical science and industry must accelerate the creation of new preparations possessing a broader spectrum of effects against weeds.

Nor has the economic mechanism of the NPO's been organized completely. Their structure includes sovkhozes and kolkhozes which are specializing in the cultivation of elite seed and the raising of young livestock and poultry. And the rayon organs are interested in ensuring that these farms produce marketable output. Conflicts arise which could be eliminated if there was a more clear differentiation of rights in the area of planning. The NPO's must acquire adequate independence.

It is believed that the time is at hand for rapidly searching for methods for increasing the responsibility of the research institutes for the quality of their work and also for raising the material interest of scientists in the final results of the work performed by the farmers and livestock breeders.

Recently I met once again with the kolkhoz chairman who believed that 30 quintals of corn per hectare was the limit. He had anticipated my question:

"Obtaining a yield of 60 quintals is no longer a problem for us" he stated, "We have the necessary varieties, machines and "chemistry" at our disposal."

"But indeed 60 quintals is a small amount" I told him, "It is now time to think in terms of 90 or 100 quintals."

"Yes it is now possible" agreed the chairman, "providing you provide the necessary assistance."

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MAJOR CROP PROGRESS AND WEATHER REPORTING

NEED FOR SECOND SOWING OF CORN IN SOUTHERN MOLDAVIA STRESSED

Kishinev SOVETSKAYA MOLDAVIYA in Russian 14 Jul 84 p 2

/Article by S. Arnaut, general director of the Gibrid Scientific Production Association and V. Zatuchnyy, head of the Department of Technology at the Moldavian Scientific Research Institute of Corn and Sorghum: "A Second Crop -- A Reality"/

/Text/ First of all, allow us to outline the problem. Its essence -- a real possibility for obtaining a second crop in the republic's southern zone. Generally speaking, this is not a new problem, since it has appeared several times in the past. However, up until now it has never been truly developed. The farms employ secondary sowings from time to time and by no means do they always obtain the desired results.

Meanwhile, conditions in the republic's southern zone at the present time are such that the possibility of obtaining a second crop simply should not be overlooked.

The lands in southern Moldavia possess a high fertility potential and yet this potential is only being utilized 50 percent. The chief reason -- frequent droughts. This situation will change in the near future through use of the Danube River water. Here, as is well known, considerable areas will be irrigated and a combination of warmth and moisture will exert a favorable influence on the crops. Such conditions are especially favorable for the growth and development of corn which, in the presence of other favorable factors, is capable of furnishing a grain yield in excess of 100 quintals per hectare.

However, even today we still are not making full use of the available conditions. Following the harvesting of the principal crop, for a period of 2-3 months, the fields as a rule lie idle and become overgrown with weeds. Last year, for example, 47,000 hectares of winter, pulse and perennial grass crops were grown under irrigation conditions in Moldavia. Yet secondary crops were sown on only one third of this area and thus the farms sustained a shortfall of many thousands of additional tons of feed. To overlook such a tremendous reserve for augmenting the feed supplies is to act in a very wasteful manner.

What can be done to ensure the most efficient use of irrigation and to obtain a maximum return from it? What can be done to ensure that an irrigated hectare

is employed in an intensive manner throughout the entire warm period of the year and aids in obtaining additional quantities of grain and feed?

Appropriate studies and experiments were carried out at the Gibrid NPO /Scientific Production Association/ in the interest of obtaining answers to these questions. The task was established as follows: to obtain a hybrid capable of furnishing grain from a secondary sowing, to develop a sowing technology and to create the appropriate equipment. A series of tests that were carried out established the fact that the Moldavskiy-215 and 257 hybrids were most suitable for secondary sowings. Last year (with sowing carried out on 23 June), they reached complete ripeness and produced yields of 38.2 and 39.6 quintals per hectare respectively.

The successful cultivation of secondary crops is dependent upon an entire complex of operations being carried out in a rapid and high quality manner. Studies have shown that the soil, following the harvesting of the predecessor crops, should be cultivated 2-3 times using heavy disk implements, combined with fallow cultivators ganged with spiketooth harrows. Moreover, following grain crops, the last disking operation should be combined with an application of 100-120 kilograms of active nitrogen agent.

In the interest of reducing the interval between harvesting the predecessor crop and sowing, direct sowing of the corn on stubble fields can be carried out without preliminary working of the soil using stubble field sowing drills. In such cases, the nitrogen fertilizer is applied together with the water during the initial watering.

Even more favorable conditions are created for the cultivation of secondary sowings if the harvesting of the predecessor crop is combined with the sowing of the corn. With this in mind, scientists attached to the Mechanization Laboratory of the Moldavian Scientific Research Institute of Corn and Sorghum designed a harvesting-sowing unit based upon use of the SPCh-6 sowing machine. It consists of a caterpillar tractor (T-74, DT-75), a front-mounted ZhRB-4.2 harvester and a sowing machine mounted on the rear hydraulic attachment of the tractor. A windrow-moving element is installed in the area of the harvester's ejection opening for the purpose of compacting and moving the windrows into the inter-row spacings of the sown crop. The unit was used in 1983 on an area of 50 hectares under non-irrigation conditions by the Association for Feed Production imeni A. Oniki of the Kriulyanskiy Kolkhoz Council. The yield from the harvested bulk amounted to 165 quintals per hectare, including 41 quintals per hectare -- ears of waxy ripeness. The economic effect amounted to 230 rubles per hectare. It bears emphasizing that the results will be considerably higher under irrigation conditions.

We will not discuss in detail the secondary sowing technology developed at the Gibrid NPO. The farm specialists can acquaint themselves with it on a working basis and the scientists are prepared to furnish practical assistance. It is only necessary to state that it is rather simple and that its use is within the capability of practically every farm. It is believed that the time is at hand for secondary sowings to be included in the annual production plans for farms. This requires that certain quantities of seed, herbicides and fertilizer be available for use. With regard to the harvesting-sowing unit and taking its

high effectiveness into account, we consider it advisable to organize its production at an enterprise of Goskomsel'khoztekhnika.

Owing to its biological properties and productive potential, corn is the most effective crop for secondary sowings under irrigation conditions. The task consists of utilizing more completely the potential offered by this crop for strengthening the feed base. An irrigated hectare can and must be worked to the maximum possible degree and furnish two yields annually.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

GRAIN SEED SALES TO STATE IN CHERNOVTSY OBLAST

Moscow PRAVDA in Russian 2 Oct 84 p 1

/Article by V. Vasilets, Chernovtsy Oblast: "The Weight of a Bukovina Ear"/

> /Text/ Forty two thousand hectares -- such are the corn fields in Chernovtsy Oblast. This has been an honored crop in the Bukovina area since olden days, with 60-80 quintals of grain being obtained per hectare. And this year the fields are furnishing an excellent yield. But there are plots on this vast tract which are evaluated not so much on the basis of ability but rather talent in pampering the ears. Here we have in mind the hybrid sowings.

Not every oblast in the Ukraine is able to obtain good seed. However the Bukovina fields are rather generous in this regard. This is why the hybridization plots here are being expanded each year. This year the seed plots exceed 7,000 hectares. The special Bukovinskiy-3 and Bukovinskiy-11 hybrids, which bear fruit splendidly in such "non-corn" oblasts as Volyn, Lvov and Chernigov, have been created here. The non-schedule teams are presently engaged in harvesting the crop.

The Kolkhoz imeni Lenin in Khotinskiy Rayon, the chairman of which is I. Mel'nichuk, is referred to as a hybridization academy. Its seed plantation exceeds 150 hectares. Along the road leading to the farm, the secretary of the oblast party committee V. Motovilin stated:

"Prior to the arrival of Mel'nichuk in the village of Klishkovets, a yield of 13 quintals of grain was harvested here. An even smaller amount was made available for sale. Meanwhile, the propagation of seed is very profitable work. Judge for yourself -- for a ton of golden grain, the state pays the kolkhoz 160 rubles, plus a bonus of 400 rubles for high quality. The kolkhoz members raised the yield of ears from 10 to 40 quintals. Last year, each hectare produced 2,000 rubles of income for the kolkhoz."

We met the chairman out on the hybrid fields. Here the harvesting of the ears was in full swing. It seemed as though all of the people were out on the fields. Women, elderly citizens and children were cleaning up the area. Entire families were engaged in carrying out the harvest work.

"Certainly, this is not a typical picture -- and you wish to know about manual labor?" asked the chairman anticipating my question, "I am aware that the expenditures of labor are great and yet they provide a greater guarantee that not one grain will be lost."

The problem of mechanized harvesting consists of the following. First of all a Khersonets combine tolerates losses and, secondly, it mutilates the ears. And who needs damaged seed? Manual operations are better.

Anyone is enriched by his own experience. Nevertheless, it is believed that the designers will listen to the complaints of the corn growers and creat a machine with special working organs for harvesting the hybrids. And now a discussion on Mel'nichuk's secrets.

"We had to engage in a controversy with science" stated Ivan Nikolayevich, "All of the textbooks and recommendations propose the cultivation of hybrids according to a 2 X 4 plan, that is, two rows of a paternal form must be alternated with four maternal rows. This serves to guarantee 100 percent pollination. We changed the second figure. Initially, we tested a 2 X 6 plan and over the past 3 years we have used the 2 X 10 method. The pollination was excellent and the yield, as a result of having increased the density of the maternal plants, increased by 60 percent."

Over the course of a day's time, a yield of seed was obtained from 10 hectares. The computations revealed that 50 quintals of seed would be shipped to the state from each one of them. Such sales would furnish the kolkhoz with approximately 400,000 rubles worth of net income.

"But money is money. For us, still another factor is of special importance" stated I. Mel'nichuk, continuing to offer his opinions, "The state allocates 2 quintals of mixed feed per quintal of seed. Thus, if an intelligent approach is employed, the profit is twofold."

At the present time, hybridization plots are springing to life also at the kolkhozes 30 Let Pobedy in Kitsmanskiy Rayon, Rossiya in Zastavnovskiy Rayon, imeni Vatutin and Bol'shevik in Novoselitskiy Rayon, where the experience of the Klishkovets Village experts has also been introduced into operations. Hot food is being made available in the working areas, the transporting of the teams to and from the fields has been organized and use is being made of mobile shops and staffs responsible for publicizing the socialist competition. In short, everything has been subordinated to the final goal -- to harvest the crop during the best periods and to sell 17,000 tons of 1st and 2d grade seed to the state, seed which in the future will provide a fine foundation for obtaining forage grain and silage bulk from plantations in the Ukraine.

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## WEED CONTROL MEASURES FOR CORNFIELDS DISCUSSED

Kishinev SOVETSKAYA MOLDAVIYA in Russian 6 Jun 84 p 2

/Article from the Gibrid Scientific Production Association: "Efficient Tending of Corn Sowings"/

/Text/ Abundant amounts of precipitation in April and May and unstable temperatures resulted in a considerable deviation from the usual calendar periods for the sowing of corn and brought about a number of peculiarities with regard to the tending of this crop.

Observations carried out in past years have shown that a surplus of moisture and cool weather reduce somewhat the effectiveness of the herbicides Eradikane and Alirox and thus the threat of contamination of the corn sowings is increasing.

The chief task at the present time consists of completely suppressing the development of the weeds, using both mechanical and chemical means for this purpose. All of the corn sowings on the farms must be inspected without delay and the density of the plant stand, the degree of weediness, the varietal composition of the weeds and the presence of pests must be determined.

On fields contaminated by dicotyledonous weeds or sunflower windfalls, spraying must be carried out using the 2.4DA herbicide in a dosage of 2-2.5 liters per hectare, when the corn plants are in the 3-5 leaf phase. No delay should be tolerated in carrying out this work, especially with regard to midseason maturing and early ripening hybrids. In the presence of strong contamination by sowthistle, Dialen 40 can be used instead of 2.4DA, during the same periods and using the same dosage as for 2.4DA.

In a campaign against sowthistle and other dicotyledonous weeds, fine results are obtained from use of a mixture of the herbicides Lontrel and 2.4DA (0.5 + 2.5 liters per hectare). However, sowthistle will not be destroyed entirely using only chemical treatments. Thus it will be necessary in the future to employ mechanical treatments on such fields.

Situations may arise in which soil herbicides will not suppress grass weeds completely. In such instances, the fields should be treated using oil suspensions of Atrazine when the weeds are in the 1-3 leaf phase.

On fields where corn is to be cultivated 2 years in a row, the Mayazin dosage must be 8 liters per hectare and Oleogezaprim 400 -- 3 liters per hectare. When growing crops which are sensitive to Triazin following corn, the dosages of mineral oil suspensions of Atrazine are reduced to 5 and 2 liters per hectare respectively. The expenditure of working solution -- 450-500 liters per hectare. However, if for one reason or another it is not possible to suppress the weeds entirely using herbicides, then all other available means should be employed for this purpose.

Quite often, harrowing of the sowings is ruled out unjustifiably. Yet this is an inexpensive operation which destroys 60-80 percent of the weeds and lowers considerably the requirements for herbicide treatments. Given the complicated conditions of this year, an important role will be played by seedling harrowing, which is carried out when the corn plants are showing 4-5 leaves. This operation thins out the corn sowings and thus the specialists have some misgivings with regard to its use. However, if the rules for adjusting and operating the unit are observed, then our data indicates that the harrow will destroy no more than 5 percent of the plants. This loss is fully compensated by a reduction in weediness and this in the final analysis will have a positive effect on the yield.

In order to carry out the seedling harrowing successfully, use must be made of wide-cut units with caterpillar tractors and medium harrows installed with no misalignment and with the teeth of the harrows up front on the beveled side. The speed of movement must not exceed 4-5 kilometers per hour.

When necessary, additional weed control work must be carried out through the cultivation of inter-row spacings using weed control harrows and ridgers.

In the case of silage crop sowings, which are cultivated for the most part without soil herbicides, the carrying out of all seedling mechanized treatments is mandatory.

A few words now concerning the waging of a campaign against old witch grass. On tracts contaminated by this malicious weed, in addition to employing soil herbicides, it will be necessary also to use an entire complex of mechanized treatments.

The formation of high corn yields is impossible in the absence of nitrogen fertilizer. In those areas where it was not possible to apply the full amount during the pre-sowing period, it will be necessary to make up for the missing amount. This can be done simultaneously with the first cultivation using cultivator-plant feeders, by applying 30-60 kilograms of active substance per hectare.

The successful carrying out of the corn grain production tasks will be dependent upon the efficient fulfillment of all of the agrotechnical requirements and the technological discipline concerned with tending the crops.

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MAJOR CROP PROCESSING AND WEATHER REPORTING

## HARVESTING, PROCESSING INSTRUCTIONS FOR BELORUSSIAN CORN CROP

Minsk SEL'SKAYA GAZETA in Russian 4 Sep 84 p 3

/Article by N. Glavatskiy, chief of the Administration for Feed, Meadows and Pastures of the Belorussian Ministry of Agriculture; P. Avramenko, doctor of agricultural sciences and Z. Glushina, candidate of agricultural sciences: "Harvest Operations and Silage Making"/

/Text/ In the overall volume of feed procurements, corn provides roughly 11 percent. If all of the requirements of the technology are observed, the silage from this crop constitutes high quality feed. A kilogram of such feed contains 0.20-0.21 feed units and 12 grams of digestible protein and when enrichment additives are employed -- 25-30 grams of protein. This is why it is very important to harvest all of the corn grown in a timely manner.

The harvesting periods represent one of the principal factors affecting the quality of corn silage. A differentiated approach should be employed when determining these periods, with the early ripening nature of the hybrids and the developmental phases being taken into consideration.

A sampling determination carried out on a number of farms on the condition of the plants of the midseason-to-early and midseason ripening hybrids Kollektivnyy-101, Kollektivnyy-210, Bukovinskiy-3, Bukovinskiy-11, Moldavskiy-300 and Bekos-251, which occupy more than 60 percent of the entire area, has shown that they are in the phases for the formation of grain of milky ripeness. At the present time, the dry substance content still does not exceed 16-20 percent and intensive growth continues. At these sites the corn should be harvested upon the commencement of the phase of milky-waxy or waxy ripeness in the ears.

Importance is attached first of all to harvesting the corn from tracts with crowded plantings, where the ears are not forming whatsoever. This bulk material should not be subjected to frost conditions. If the plants are frozen, good quality silage can still be obtained provided the corn is harvested during the initial days following the frost. If a delay takes place in carrying out the ensiling work, the plants will sustain considerable damage caused by funguses and thus good feed will not be obtained. Butyric acid of PH4.5 and higher forms in the silage and the content of crude protein and the digestibility of the nutrients decrease by more than 20 percent.

It should be borne in mind that when corn enters the milky ripeness phase, the plants become more resistant to low temperatures. Following brief frosts (-1, -3°), such plants continue to grow and accumulate nutrients in the ears.

Almost one fifth of the republic's corn area is occupied by early and medium-early ripening hybrids, which are capable of producing ears of both milk-waxy and waxy ripeness. At this time the plants will contain 35 or more percent of dry substance and the grain -- in excess of 50 percent. The leaf and stalk bulk will contain 65 percent moisture and will be fully suitable for ensiling. It is not advisable to harvest corn with ears of waxy ripeness together with the leaf and stalk bulk. It is better to remove the ears separately and to use them for the preparation of mixed silage. The ears are harvested using a Khersonets-7 combine and where such units are not available -- a grain combine with a PPK-4 attachment.

The results of the corn harvest will depend upon how efficiently it is carried out. It will be necessary first of all to shut down the channels for fodder losses. On each farm the equipment must be prepared in a thorough manner and the machines must be hermetically sealed and adjusted.

The farm specialists are obligated to determine the moisture content of the corn fodder in a systematic manner, such that a decision can be made based upon analytic data concerning the best variant for the ensiling technology.

Corn silage should be prepared only in lined trenches. The ensiling of corn in clamps is categorically forbidden, since the losses caused by feed spoilage in the side and upper layers are great (more than 30 percent).

Considerable importance is attached in all areas to achieving an optimum milling of the silage bulk, ensuring that it is tamped down thoroughly and that the trench is filled and covered in a timely manner. All measures must be undertaken to ensure that the silage bulk has a moisture content on the order of 70-77 percent and that the temperature in the trench does not exceed 38-40° Centigrade. Moreover, the containing unit must be filled up within 4 days time. High quality silage will be obtained if this condition is met.

Corn, which has a rather high energy-producing nutritional value, is poor in protein and its sugar-protein ratio in prepared feed does not meet the physiological requirements of the animals. In order to raise the protein value, use should be made of synthetic nitrogen-containing substances at the rate of 3-5 kilograms of urea per ton of silage bulk. Moreover, this dosage should not be exceeded, since the ammonia that is released has an alkaline reaction and thus to a large degree it adversely affects the formation of lactic acid in the silage.

Corn contains a considerable amount of sugar -- 3-4 percent. However, a majority of this sugar is expended during the natural process of ensiling for the formation of organic acids. The use of chemical preservatives and particularly when the moisture content of the silage bulk is greater than 75 percent makes it possible to retain 60-80 percent of the overall amount of sugar available. This requires the use of benzoic acid (1.5-2 kilograms per ton), the Finnish preservative Vikher (3 kilograms per ton), a preservative-enrichment agent (mixture of formic acid, propionic acid and urea -- 7 kilograms per ton) and KNMK (3 kilograms per ton).

When ensiling corn of a raised moisture content, the separating out of the juice causes a nutrient loss of 22-25 percent. This loss can be eliminated and the quality of the feed improved at the same time by adding from 10 to 15 percent high quality milled straw per ton of silage. The straw and chaff from cereal grass crops (barley, oats) and pulse (pea) crops can be used as the additive. Pea straw is the best component for the ensiling of corn which has a raised moisture content. It mixes well with the corn, it does not spring back when being packed down and it absorbs and retains the juice very well. The lower soil layer (almost 1 meter) on the bottom of the trench acquires a fine aroma and is readily consumed by the livestock. The technology for the combined ensiling of corn with straw is as follows. Initially, a layer of straw cuttings (50-100 centimeters) is placed on the bottom of the silage trench and thereafter a layer of corn (25-30 centimeters). Additional layers are added in the same manner until the trench is filled. More straw is included in the lower layers and less in the upper layers.

Immediately after the trench has been filled, it is covered over with plastic with a 15-20 centimeter layer of peat or dirt being placed on the plastic to hold it down. Although corn is considered to be a crop which is easily ensiled, the feed will not be of good quality if the trenches are not well covered.

A most important task of the farm leaders and specialists is that of ensuring that the corn is harvesting in a timely manner. Both haste and prolonged operations are unacceptable here. It should be borne in mind that in early October there is a noticeable reduction in the average daily temperatures and a greater probability of autumnal frosts. Thus the corn harvesting work should be completed by this time. The technical potential now makes it possible to harvest corn in Brest Oblast in just 18 days, Vitebsk Oblast -- 20, Gomel Oblast -- 23, Grodno -- 14, Minsk -- 16 and in Mogilev Oblast -- in just 17 days.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

## REQUIREMENT FOR TIMELY, HIGH QUALITY CORN ENSILING WORK STRESSED

Kishinyov SOVETSKAYA MOLDAVIYA in Russian 8 Sep 84 p 1

/Article: "A High Tempo for the Ensiling of Corn"/

> /Excerpt/ Attaching special importance to the carrying out of the established plans for the production of animal husbandry products, based upon the creation of a strong feed base for the forthcoming livestock wintering period, the Central Committee of the Communist Party of Moldavia and the Council of Ministers of the Moldavian SSR have adopted a decree on additional measures for ensuring the timely and high quality ensiling of the 1984 corn crop.

The need for ensuring the harvesting of corn for silage as rapidly as possible and in the established volumes has been pointed out to the Kolkhoz Council, the ministries of agriculture, fruit and vegetable industry, food industry, viniculture and wine-making for the Moldavian SSR, the agro-industrial associations Moldtabakprom and Moldefirmasloprom, the Moldsel'khozkhimiya Production-Scientific Association, Goskomsel'khoztekhnika for the Moldavian SSR, rayon party committees, executive committees of rayon soviets of people's deputies and to the leaders of kolkhozes, inter-farm associations (enterprises), sovkhoz-plants, sovkhozes and other agricultural enterprises.

During the next few days the leaders and specialists of kolkhozes, inter-farm associations (enterprises), sovkhoz-plants, sovkhozes and other agricultural enterprises must complete their repair work on silage harvesting combines and transport equipment, they must complete the construction of new silage installations and the repair of existing ones and they must develop work plans which call for the ensiling work to be completed within not more than 18-20 working days. Harvesting-transport detachments must be created on each farm, they must be provided with the required amounts of equipment, transport vehicles and personnel and work schedules must be prepared based upon the corn ripening periods. The harvesting of corn for silage is carried out only during the period of waxy ripeness of the ears and when the moisture content is 65-68 percent. A silo storage unit must be filled within 2-3 days and thereafter covered with a plastic or other type of airproof material. In all areas the silage bulk must be milled to a cutting length of not more than 20-30 millimeters and it must be tamped down around the clock. In addition, constant watch-standing must be organized for those persons responsible for

monitoring use of the ensiling technology, determining the quality of the silage in a timely and correct manner and ensuring that it is accounted for properly and turned over for storage.

For the purpose of supplementing the feed supply, more extensive use should be made of the practice of placing the leaf and stalk bulk harvested for grain in trenches, with the mandatory addition of the haulm of sugar or fodder beets, pulp residue, post harvest corn and other crops from late sowings.

The Ministry of Motor Transport for the Moldavian SSR must ensure the transporting of the silage corn in the established volumes.

The decision has been made to launch a republic socialist competition among the rural rayons for carrying out the corn ensiling work as rapidly as possible and for obtaining high quality silage. The results are to be summarized once every 5 days commencing on 5 September.

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## CORN HARVEST STATUS IN POLTAVA OBLAST DISCUSSED

Moscow SEL'SKAYA ZHIZN' in Russian 23 Oct 84 p 1

/Article by N. Demikhovskiy, Poltava Oblast: "Arithmetic of a Golden Ear"/

/Excerpts/ It has been a long time since such a fine yield of corn was obtained in Poltava Oblast. This year yields of 40-50 quintals and even more of the dry grain per hectare are a common occurrence on farms throughout the entire sowing area and especially in such rayons as Khorolskiy, Reshetilovskiy, Novosanzharskiy and Zenkovskiy. And even in Lokhvitskiy Rayon, which is engaged mainly in the growing of hybrid material, the average per-hectare yield amounted to 42 quintals.

That which the experts achieved on individual plots has this year become the norm for entire farms. And the experts have proceeded even farther, with their operational indicators clearly indicating that the potential of the oblast's golden ears is far from exhausted.

Following failures with the early grain crops, caused by the dry summer weather, an opportunity presented it self on the eve of the wintering campaign to correct substantially the forage balance on the farms. It should also be emphasized that never before has the proportion of corn grain in the forage been as high as it is this year -- it constitutes one third of it. A considerable increase took place in the preparation of milled ears and dehydrated corn granules and more raw materials were obtained for silage purposes. Although this year turned out to be more difficult than last year, nevertheless 11 tons of silage per cow were procured throughout the oblast -- almost 25 percent more than last year.

Corn grain was also added to the state granaries in behalf of the plan and above-plan sales. Thus Lokhvitskiy Rayon, one of the few in the oblast to have completed its task for the sale of early grain crops, has now in addition "erased" its obligation with regard to corn. The sovkhozes imeni Michurin and Vyrishal'nyy of the Lokhvitska Sugar Plant have completed their five-year plan for the sale of grain to the state one year ahead of schedule.

Other such farms are to be found in Khorolskiy Rayon. Included among them are the kolkhozes imeni Lenin, imeni Il'ich and Chervona zirka and the Sovkhoz imeni 9th Yanvarya.

What is this -- a success? A favorable merging of circumstances? My questions, which were addressed to a large number of farm leaders, were answered rather convincingly by the chairman of the Kolkhoz imeni Engel's in Reshetilovskiy Rayon, Vladimir Nikolayevich Bezgin:

"If all of the work was successful, then why is it that some of the farms obtained 50-60 quintals of corn per hectare, while other neighboring farms which operated under the very same conditions were content with obtaining only 22-25 quintals? Certainly, the weather conditions are of considerable importance and must not be overlooked. But these conditions must be utilized in a skilful manner."

Vladimir Nikolayevich has good reason for making such a statement. The farm which he directs obtained 62 quintals of dry grain from each hectare. At the same time, there are some farms in Reshetilovskiy Rayon the harvests of which are 2-3 times less.

At the present time, with the busy harvest season nearing completion out on the plantations, one can better understand which measures in the agrotechnical complex made it possible for the ears to display their potential more completely. The chairman was not talking about an experiment which long ago became a tradition -- early autumn plowing, applying organic and mineral fertilizer to the soil and employing high quality seed and an industrial technology. These are the ABC's. Subsequently he discussed a whole series of innovations without which it would probably have been difficult to achieve such considerable results. Here I have in mind the selection of highly productive hybrids for various ripening periods -- from early to late ripening. They made it possible to extend the harvest period and in this manner to decrease sharply the grain losses. The personnel were armed with knowledge of high quality agricultural procedures and they followed them in a very strict manner. This made it possible, in each specific instance, to create the required plant density and to employ herbicides in a skilful manner.

I am talking about certain elements of the agricultural techniques employed at one kolkhoz. But they were brought to my attention in all areas where high yields were obtained. And the misfortunes associated with the growing of corn were also brought to my attention in like manner. They concerned first of all the quality of the harvesting equipment for the corn fields. The Kherson machine builders should have listened to the complaints registered by the farmers, especially those concerning the Khersonets-200. I was informed in all areas that such a combine is not needed out on the corn fields. It tolerates large grain losses, it does not save the husks for the farms and it breaks down frequently. The PPK-4 attachment is much better.

The Poltava Oblast corn growers have had a fine year. It has taught them a practical lesson by revealing not the assumed but rather the true strength of a golden ear. But this strength is harvested only by skilled farmers, by those who utilize their knowledge in a skilful manner.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

## MOLDAVIAN SSR RECIPIENT OF AWARD FOR SUNFLOWER PRODUCTION

Kishinyov SOVETSKAYA MOLDAVIYA in Russian 30 Jun 84 p 3

/Article: "For a High Yield"/

/Text/ In solving the Food Program, the party and government have assigned an important role to the intensive development of technical and especially oil-bearing crops. The products obtained from the processing of these crops occupy an important place in the food balance. The republic's farmers have achieved notable successes in their campaign to increase the production and procurements of seed for sunflower hybrids and also in their implementation of measures aimed at raising the efficiency of the branch. Over the past 2 years, the yield of oil-bearing seed has increased by 2.6 quintals per hectare and the production and sale of the seed have increased by more than 11 percent. The conferring upon the republic of the Challenge Red Banner of the USSR Council of Ministers and the AUCCTU for having increased the production and purchases of seed for oil-bearing crops during 1983 served as high recognition of these achievements.

A ceremonious republic meeting was held on 29 June in the Glodyanskiy Rayon Palace of Culture, during which the Deputy Minister of Agriculture for the USSR I.P. Bystryukov delivered the award to representatives of the Moldavian farmers.

The chairman of the Council of Ministers for the Moldavian SSR I.G. Ustiyan, who delivered a report on the tasks of workers attached to the republic's agroindustrial complex in connection with further increasing the production and purchases of seed for oil-bearing seed and other farming and animal husbandry products, noted that during the past extremely dry year 19.5 quintals of oil-bearing seed per hectare were obtained in the republic as a result of the introduction of hybrid sunflower seed into production operations and also owing to the extensive use of the industrial technology for cultivating this crop. Almost 200,000 tons of this seed were turned over to the state. The workers in Glodyanskiy Rayon have raised their sunflower yield to more than 29 quintals on the average. The farmers in Drokiyevskiy, Oknitskiy, Yedinetskiy and Kamenskiy rayons also made a great contribution towards carrying out the state plan. Based upon the results of the all-union competition, these rayons were awarded challenge red banners of the USSR Council of Ministers and the AUCCTU.

The main speaker and also others who delivered speeches during the meeting, such as the 1st secreatry of the Glodyanskiy Rayon Party Committee D.S. Chebotar', the leader of Mechanized Detachment No. 7 of the Chadyr-Lungskiy Rayon Kolkhoz Council Hero of Socialist Labor Z.G. Paskalov, the director of the Sovkhoz imeni Kalinin in Kamenskiy Rayon I.V. Tuzlovan and others, in addition to the successes, also commented upon the shortcomings noted in the cultivation of commodity sunflowers and they also discussed the methods for eliminating these shortcomings.

This year, it was emphasized during the meeting, the republic's workers intend to take advantage of the experience already accumulated and produce 10,000 tons of 1st generation hybrid sunflower seed -- considerably more than last year. This will make it possible not only to satisfy completely the seed requirements of the republic's farms but also to ship a considerable amount of this seed to other regions of tne country. The seed will be sown on one and a half million hectares of arable land.

Members of the Bureau of the Central Committee of the Communist Party of Moldavia Ye.P. Kalenik and G.A. Stepanov participated in the work of this meeting.

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## MEASURES FOR COMBATING WHITE, GREY MOULD IN SUNFLOWERS

Kiev PRAVDA UKRAINY in Russian 20 Sep 84 p 4

/Article by N. Svichkolap, Kiev: "Friend of Sunflower Seed"/

/Text/ The workers at the Ukrainian Scientific Research Institute for the Protection of Plants have found a biological method for combating an evil enemy of sunflowers -- white and grey mould.

In its homeland, in South America, this plant is refferred to as a sunflower: because of its golden color and because of the property of the seed to follow the sun during the course of a day.

But this plant with such a pretty name is subject to dangerous diseases. For years and decades the plant breeders have been searching for a sunflower form that would be resistant to these diseases or at least be able to endure them. But as yet no such specimens are to be found in the world's gene funds.

Working alongside the plant breeders are the scientists, whose duties call for them to limit the development of diseases, destroy the cause of infections and protect the crops. Their task is a complicated one: the sunflower seeds are infected by mould during almost all phases in their development. The head releases phytonicids only when it is green and mould does not make an appearance. But the wet spots appear during the ripening period and inflict damage on the heads.

"In the seed of diseased heads, the acid count for the oil increases to 5-8 and at times even to 15 units, against a norm of 2-2.5 units" stated the deputy director of the institute V.S. Chaban, "The seed has a bitter taste and can not be used for making food oil."

There is still another problem: sclerotium -- which causes the infection initially -- falls from the sunflower seed tissue, lands on the ground and winters there. With the onset of spring, they germinate and form funnel-shaped fruit, the spores of which are scattered by the wind. Small and harmless in appearance, they are capable of destroying entire plantations. At times, up to 50 percent of a crop perishes. The sclerotium live in the soil up to 8 years.

The disease must be attacked in the most vulnerable element of the cycle. But in which one? The forms in which the ailment manifests itself are varied. Attempts were made to treat the fields with pesticides during the blossoming period -- the mould did not respond to them. Yes and unfortunately it is a fine honey plant.

And why is it that the sclerotium does not live in the soil for a longer period than 8 years? This question prompted a thought: could it be that the microbiological effect of the soil is a true healer, with the sclerotium having its own parasites?

Experiments were carried out. And once again -- one experiment after another. Junior scientific worker I.V. Yakubov and senior laboratory worker M.P. Gorodiskaya dedicated days and months to this laborious work.

"Finally we isolated approximately 20 funguses from the soil which successfully break up the moulds" continued Vasiliy Sidorovich, "Of these 20, one was more active than the others and, it follows, was of greater interest to us."

Koniotiriy deals very effectively with the sclerotium, destorying it completely. But how can this fungus be propagated such that there will be an adequate amount for field tests? And how was it to be used?

A new culture of Koniotiriy grew in a flask containing a sandy medium over a period of three weeks. Following drying and mixing, the fungus was ready for use. And alongside there was a flask containing Koniotiriy which had been grown in a liquid nutrient medium.

At the present time, we are using it out on the fields. From spring until autumn it works for us out on the fields and in the winter we grow our Koniotiriy.

A new problem -- its use. We tried treating the seed. This did not work. Should it be applied to the sowing area? But at what depth? We settled this problem. The field germination rate was raised. And a new task: attachments are required for the sowing machines which will place the seed and the biopreparation in the ground simultaneously.

In the not too distant future, the laboratory works and small plot testing being carried out during a given stage by the scientists will give way to the use of the biological method for growing sunflower seeds in the field. And there can be no doubt but that a high level of agricultural practice, coupled with the simultaneous use of this method for protecting sunflowers, will produce fine results.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

## CORN HARVEST PROBLEMS IN THE UKRAINE REVIEWED

Moscow PRAVDA in Russian 13 Sep 84 p 1

/Article by L. Ivanov: "Gifts of the Golden Ear"/

> /Text/ September is the most generous month in the rural areas. Grain, vegetables, fruit and potatoes are being harvested. Vehicles carrying beets and cotton are hurrying to the plants and receiving points. The feed fields are also furnishing many products for the farms. By 10 September, according to data supplied by the USSR Central Statistical Administration, grain and pulse crops had been threshed on 90.1 million hectares. The harvest operations are already nearing completion in some oblasts in the east. And in the southern regions, the harvesting of corn for grain is commencing.

The corn plantations occupy more than 5 million hectares and they must augment considerably the country's food and forage supplies. Many kolkhozes and sovkhozes have mastered the industrial technology for cultivating the amber grain. A number of farms in Uzbekistan, Tajikistan and other republics are obtaining two crops annually and an overall yield of up to 100 or more quintals per hectare. Thus in some areas the harvesting units were moved out onto the fields somewhat later than usual.

The largest corn area -- the Ukraine. There are many true experts here who obtain generous yields of this herculean crop during any year. For example, let us take Cherkasskiy Rayon in the oblast by the same name. In response to an appeal by the workers at the Kolkhoz imeni Krupskaya, a competition was launched here to obtain 70 quintals of grain from each hectare. The harvest operations on the farm were started in an organized manner. The stalks were still green. These would be for silage. A continuous flow is being provided by the corn harvesting combines and vehicles. Some carrying chopped bulk are being directed to trenches and others -- to processing points. From here the ears are shipped to the state's granaries. This year the farms in Kirovograd Oblast intend to sell hundreds of thousands of tons of the amber grain to the state. At the present time, approximately 1,400 corn harvesting combines have been moved out onto the plantations here. True, in some regions the preparation of the equipment is being dragged out and some of the units have turned out to

be inoperable. Thus the harvesting rates on farms in Olshanskiy, Ulyanovskiy and Gayvoronskiy rayons are still low.

The method for storing forage grain of a raised moisture content is being employed extensively on the republic's farms. When there is a shortage of dryers, the ears are minced and stored under plastic in concrete trenches. The feed retains its nutrients very well, an increase takes place in the yield per hectare and reductions take place in the production costs for the forage and also in labor expenditures. A reduction also takes place in the requirements for concentrated feed. This technology is within the capability of every farm.

On a number of farms throughout the republic, the workload being imposed on the harvesting units is high. Use can be made of grain harvesting combines, however there is a shortage of PPK-4 attachments. And not only at kolkhozes and sovkhozes in the Ukraine but also in other regions as well.

There is still one other problem confronting the corn growers: where can they obtain spare parts for the Khersonets-7 combine? Although it was recently removed from production operations, it nevertheless is still being used on many farms. And the machine builders appear in a hurry to curtail the production of spare parts for this machine.

The corn growers of Kazakhstan have joined in the harvest campaign. For example, the areas used for this crop have been expanded considerably in Chimkent Oblast. Many of the farms here grow it under irrigation conditions and are obtaining worthy yields.

As is known, the kolkhozes and sovkhozes in the northern Caucasus are supplying the silos not only with commodity grain but also seed for many regions of the country. The farmers in the Kabardino-Balkar and North Osetian ASSR's hope to exceed their tasks for seed production, which is being awaited by more than 40 oblasts, krays and autonomous republics.

At the present time, the weather here is not indulging the corn growers. The authorities on the farms have reviewed their work schedules, arranged their forces anew and assembled their equipment into large complexes. The measures undertaken made it possible to proceed at a high work tempo commencing with the very first days of the harvest.

The agroindustrial associations are displaying concern for ensuring that the partners furnish worthy assistance. For example, all-round detachments have been created in the Kabardino-Balkar ASSR, attached to Sel'khoztekhnika associations. These detachments include harvesting units, tractors and transport vehicles. And in the Northern Osetian ASSR, each of the 80 harvesting-transport complexes includes a team of Sel'khoztekhnika repair workers. All breakdowns are corrected in an efficient manner and a reduction has taken place in the machine idle time.

Moreover, thorough preparations for the harvest campaign were not made in all areas. Thus the harvest production line is producing low figures in some areas. The repair work on combines and grain threshing floors was carried out late in

Alagirskiy and Zolskiy rayons. Losses in time frequently result in losses in yields.

At times, the procurement specialists fall short in their obligations to the corn growers. There is a shortage of dryers at the grain receiving enterprises. The farms are forced to retain the ears themselves for a period of time and to carry out the post harvest processing of the corn. Quite often, small production lines and threshing floors are built at the kolkhozes and sovkhozes. For example, more than 12 million rubles have been spent in recent years for this purpose in the Kabardino-Balkar ASSR. Large quantities of metal and deficit materials have been expended. Still the equipment does not always perform in an effective manner. USSR Minsel'khozmash /Ministry of Tractor and Agricultural Machine Building/ and Goskomsel'khoztekhnika must display more concern for complete equipment deliveries.

By no means are all of the farms making full use of the opportunity afforded by corn for increasing the forage grain resources. The areas used for this crop can be expanded in many of the southern regions. Not enough corn is being cultivated under irrigation conditions and this is lowering considerably the return per hectare. In addition, low yields are being obtained from irrigated lands in a number of areas. At times, owing to serious miscalculations in organizing the work, the industrial technology does not produce the desired results.

During the next few years, it will be necessary to increase the proportion of sowings of early ripening and mid-season to early ripening hybrids. This will expand the zone for the cultivation of corn. Here a great deal depends upon the plant breeders, who still are not always satisfying the requirements of the practical workers. Improvements are required in corn seed production. As you can see, the branch has many problems. And the agroindustrial associations must apply themselves in a serious manner to solving these problems.

Vehicles fully loaded with golden ears are advancing along the rural roads. The corn growers are striving, as rapidly as possible, to complete their harvest of this herculean crop.

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# TECHNOLOGY FOR MILLED CORN EARS, GRAIN OF RAISED MOISTURE CONTENT

Krasnodar SEL'SKIYE ZORI in Russian No 8, May 84 pp 44-47

/Article by A. Bespamyatnov, Candidate of Technical Sciences and head of a laboratory for the mechanization of the harvesting of corn and forage crops at the All-Russian Scientific Research and Planning Technological Institute for the Mechanization and Electrification of Agriculture and A. Nadezhin, scientific worker: "Two Weeks Earlier Than Usual"/

/Text/ Grain and comparatively dry leaf and stalk bulk with a moisture content of 40-50 percent are obtained from the harvesting of ripe corn. The grain is dried out and used for forage, food and seed purposes and the stalk bulk is ensiled. However, the silage obtained from dry leaf and stalk bulk is of very low quality; it is poorly consumed by the livestock and during the harvest process the cobs and husks of the ears are lost. Large quantities of fuel (60-30 kilograms per ton), material-monetary resources and labor are expended for drying out the ears and grain. Owing to a deficit of fuel and a shortage of drying equipment, many ears of a forage nature remain on the farms in a non-dried out state and this leads to grain losses and spoilage during storage (up to 20-25 percent).

The zootechnical science and practical experience have shown that in order to obtain a maximum amount of nutrients per hectare and high energy feed, the corn must be harvested during the stage of waxy and at the beginning of complete (technical) ripeness, with thorough milling and placement in hermetically sealed storage containers: ears in their husks and the leaf and stalk bulk separately (concentrated feed and silage for cattle); ears without husks; grain in pure form with a part of the cobs (feed for hogs and poultry). The nutrient losses are minimal during the course of their storage (5-7 percent); these feeds are consumed readily and completely by the animals, with the productivity of the cattle and hogs showing no decline compared to animals fed dry corn grain.

Mandatory conditions for the successful procurement of preserved feed obtained from corn: observance of the optimum harvesting periods; flow line operations for the harvesting, processing and storage of the harvest products; high quality milling of the grain, ears and leaf and stalk bulk; thorough packing of the milled bulk in a trench and its rapid hermetic sealing.

The period for harvesting the corn during waxy and at the beginning of complete ripeness lasts usually for 10-12 days and is characterized for the most part by

a grain moisture content of 45-30 percent as the corn ripens. At this point the stalks are still green, although the lower leaves are completely dry. The average moisture content for the leaf and stalk bulk is 65-60 percent.

The bulk must be thoroughly milled before being placed in a trench. During the milling process, 80 percent of the grain is crushed into particles less than 2-3 millimeters in size and the remainder -- less than 4-5 millimeters. There can be no whole grains in the milled bulk. In processing the ears, the cobs are milled into particles which are no more than 5-10 millimeters in size and the husk leaves -- 40-50 millimeters. It is best to use a dead end trench with a one-sided entrance. A sheet of plastic 0.2 millimeters thick should be placed on the bottom of the trench (1 meter from each side) and extend up to the side walls. The width of the plastic must be such as to cover the bulk with an overlap of 2 meters. A trench of any capacity is filled with milled grain or ears over a period of 3-4 days. For milled ears the density of the packing of the bulk is 800-850 and for grain -- 900-1,000 kilograms per cubic meter.

Depending upon the purpose of the grain that is procured, the corn is harvested in the form of ears or threshed for grain. In the first instance, use is made of the Khersonets-200 and Khersonets-7 corn harvesting combines and in the second -- the SK-5 Niva grain harvesting combine with a PPK-4 attachment. Husked ears are milled and placed in a trench for cattle. Ears from which the husks have been removed, the threshed grain or a grain-cob mixture are minced and conserved mainly for hogs and poultry.

In order to ensure stable separation of the ears of waxy ripeness from the stalks, active mills are installed on the Khersonets-7 combine. On the Khersonets-200 combine, the clearance between the stripper plates of the working channels of the harvester is reduced by 2-4 millimeters compared to the figure recommended in the instructions and the clearance between the cleaners and the extension mills is also reduced to a minimum. Husked ears are removed when the cleaning unit of the combine is shut down, with the battery of mills being turned off by panels included in the kit. In order to obtain clean ears, the cleaning unit is turned on and adjusted in accordance with the plant instructions.

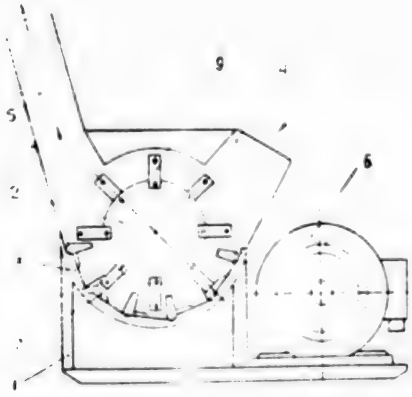
In order to harvest corn with threshing and obtain a grain-cob mixture, using an SK-5 combine, the working channels of the PPK-4 attachment are adjusted in like manner as for the Khersonets-200 combine. In order to ensure complete threshing of the grain and the introduction into it of 50-60 percent of the cobs, compared to their overall content in the ears, adjustments must be carried out with regard to the threshing unit and the cleaning of the combine.

The frequency of rotation of the drum is reduced to 600 revolutions per minute and the beater plate space is closed using panels from the PKK-4 kit. The longitudinal rods of the deck are removed through one. Between the drum and the deck, a clearance of 45 millimeters is installed at the entrance and at the exit -- 10 millimeters. In cleaning the combine, the lower screen is removed and on the upper side the louvers are opened completely. The fan revolutions are reduced to 250 per minute. In order to improve the process of unloading the bulk from the combine's hopper, the cover of the horizontal unloading screw conveyer is removed.

In order to obtain clean grain (without stumps), the combines are adjusted in accordance with the plant instructions.

Ears and corn grain of a raised moisture content can be milled using existing KDU-2, DKM-5 and DIS-1M crushers, Volgar'-5, ISK-3 and IRM-15 milling units, re-equipped IRT-165 and IGK-30B milling units or the twin-drum Kolos grain harvesting combines. However, the majority of these machines have a low productivity (2-5 tons per hour) and they are characterized by low quality milling. Thus they are unable to meet the requirements for flow-line harvesting, for processing the corn or for obtaining high quality feed.

These requirements are best met only by the IRT-165 and IRM-15 machines and the Kolos combine, all of which have a productivity of 15-20 tons per hour. Over a period of 3-4 days of work, each of them can lay away up to 1,000 tons of grain. The procurement of a large quantity of milled grain or corn ears (4,000-5,000 tons) for large farms and livestock complexes should ideally be carried out using highly productive machines -- BF-7 grain crusher (produced in the Hungarian People's Republic) or the IRM-50 milling unit (developed by VNIPTIMESKh /All-Russian Scientific Research and Planning Technological Institute for the Mechanization and Electrification of Agriculture/). They ensure the required quality in the processing of corn, without any re-equipping being required and with a productivity of 40-60 tons per hour.




Structural-Technological Diagram for an IRM-50 Milling Unit

Key:

1. Frame
2. Drum
3. Deck
4. Loading tray
5. Unloading deflector
6. Electric drive
7. Grooved planks
8. Anti-cutting planks
9. Threshers

The BF-7 crushers is a highly specialized machine that is used only for the processing of grain or a grain-cob mixture. It is operated by a 75 kilowatt electric motor or by the VOM /power takeoff shaft/ of T-150K or K-701 tractors. In the first instance, the productivity of the crusher is 20 and in the second -- up to 40 tons per hour. The average size of particles in milled bulk obtained using a BF-7 crusher -- 1.6-2.6 millimeters.

The IRM-50 general-purpose milling unit is intended for the processing of ears and leaf and stalk corn bulk of any moisture content. It is used for the combined milling of ears, beets, fodder and other components when procuring mixed silage and also for the preparation of feed mixtures obtained from coarse and succulent feeds in special shops.

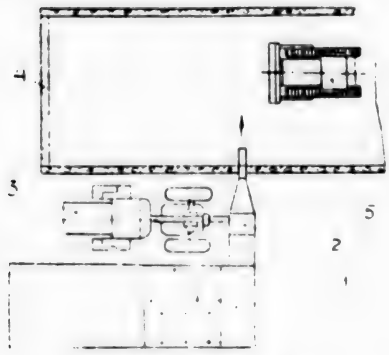
The principal elements of the IRM-50 milling unit: a drum 1.1 meters long with a diameter of 0.8 meters, which breaks up the feed on a deck that is equipped with six rows of anti-cutting plates and five grooved planks. The plates on the deck and the threshers on the drum are fastened by means of hinges and thus they are able to back off upon encountering solid objects and thus prevent breakdowns. On the working surfaces of the threshers and anti-cutting plates there are longitudinal grooves which form lateral and end cutting edges. Such working organs ensure the milling of feed with minimal expenditures of power and a stable technological process for machine operation for any moisture content in the bulk.

The milling unit is powered by a 90-110 kilowatt electric motor or by the VOM of a K-701 tractor, with a frequency of rotation of the cutting drum of 1,500 and 2,000 revolutions per minute respectively. The productivity of the IRM-50 is 40-60 tons per hour, the average size of the grain particles -- 1.6-2.2 millimeters, ears -- 3.9-4.3 and leaf and stalk bulk -- 30-40 millimeters. The feed is supplied by means of belt conveyer with scrapers that is 1 meter wide, upon which the feed can be loaded using a modernized PZM-1.5 feeder or two KTU-10A units (ears, beets, fodder); a BM-62 vibration feeder or a loading hopper with a controlled damper (grain, cleaned ears).

The feed is fed into the PZM-1.5 and BM-62 feeders using dumptruch transport equipment and into a KTU-10A unit or a loading hopper -- using PF-0.5 and PE-0.8 tractor loaders or other items of equipment. The best means is flow line delivery of the bulk -- delivered directly to the feeder from the combines by transport equipment -- since the need for transshipping or loading equipment is eliminated here. However, such a plan for processing products in a flow line at harvest time requires thorough coordination of the work of the harvesting and fixed machines in terms of productivity and this is very difficult to achieve. Thus it often becomes necessary to use the transshipment method for delivering the bulk to a milling unit, that is, with the product being unloaded upon arrival onto a platform for accumulation purposes (for 4-6 hours of work) and thereafter loading into a feeder with the aid of a loader.

For the flow line process for harvesting, milling and placing the bulk in storage, it will be necessary to ensure that there is sufficient raw material available for processing during the daylight portion of the day to keep the fixed equipment installed in the vicinity of a trench and used around-the-clock fully occupied. The productivity of the technological line for placing bulk in storage must be such as to ensure that the trench is filled up. The storage facility must be hermetically sealed within 3-4 days.

The capacity of the storage facilities and the number of machines required are determined based upon the feed procurement volumes. For example, if a farm is required to procure 1,000 tons of milled grain or ears, then a dead-end concrete trench 8-10 meters wide, 2.5-3 meters high and 40 meters long is needed. In order to fill it up in just 3 days, 330 tons of bulk must be



Technological Line for Processing Corn Ears and Leaf and Stalk Bulk Using an IRM-50 Milling Unit

Key:
1. PZM-1.5M feeder
2. Milling unit
3. K-701 tractor
4. Concrete trench
5. Tractor for tamping down bulk.

placed in it daily. If the work of milling and tamping down the bulk is organized on an around-the-clock basis (that is, not less than 20 hours of continuous operation), then the productivity of the milling unit must be approximately 17 tons per hour. This requirement is met by a re-equipped IRT-165 million unit with tractor loading, an IRM-15M with loading by a BM-62 (grain) vibration-feeder or by a KTU-10A (ears) feed distributor. In order to ensure that the milling unit is supplied with grain, the corn must be harvested throughout the daylight period of the day (10 hours) by eight SK-5 Niva combines with PPK-4 attachments. If ears are milled, then the harvest work must be carried out by six Khersonets-200 combines. If the milling unit is operated only throughout the daylight portion of the day (10 hours), then the number of combines required can be reduced by 50 percent and the capacity of the trench must be 500 tons so as to ensure that it is filled within the agrotechnical period (3 days). In such a case, the farm will require two trenches.

Simultaneously with the laying in of grain (ears), the leaf and stalk bulk milled by a combine is ensiled in another trench. Two motor vehicle dump trucks (ZIL-554M) or a KamAZ-5510 (for grain) and 8-10 GAZ-53B motor vehicles with built-up sides (for bulk) are required for removing one or both of the above away from the four combines over a distance of 4-5 kilometers.

Last year, using this type of work organization and aided by two IRT-165 milling units, the Severnyy Sovkhoz in Salskiy Rayon, during a brief interval of time, stored 1,000 tons of corn grain and ears in a trench. At the Put' Lenina Kolkhoz in Kagalnitskiy Rayon, ears were milled using an IRM-15M, into which they had been loaded by two KTU-10 feed distributors ganged with MTZ-80 tractors. While one distributor was unloading ears into the milling unit (approximately 10 minutes), the other was being loaded on the threshing floor by a PF-0.5 loader. Thus a continuous conveyer line was obtained for the loading, milling and tamping down of bulk in a trench. The productivity of the milling unit was approximately 15 tons per hour. Over a period of 4 days, 1,000 tons of such feed were obtained.

At the Rogovskiy Sovkhoz in Yegorlykskiy Rayon, a Hungarian technology was employed for procuring 1,500 tons of a lightly milled grain-cob mixture. Corn of waxy ripeness and with a grain moisture content of approximately 40 percent was harvested with threshing by eight SK-5 Niva combines with PPK-4 attachments. The combines furnished a grain-cob mixture and a milled leaf and stalk bulk with a moisture content of 65 percent. The mixture was milled on a BF-7 crusher which was powered by a K-701 tractor. The dump trucks which brought the grain mixture in from the fields unloaded it into a BM-62 hopper-batcher, from which it was smoothly delivered to the crusher by means of a belt conveyer. From here the bulk was moved by means of two belt conveyers to a ground concrete trench, where it was tamped down by two tractor-bulldozers. The productivity of the crusher -- up to 40 tons per hour. After it was filled, the trench was covered with plastic and the plastic in turn covered by a 10 centimeter layer of dirt. Thereafter a second plastic was placed over the dirt and this plastic was covered by slabs and old coverings.

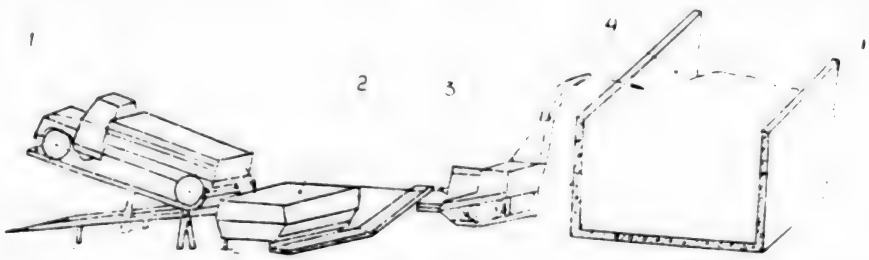
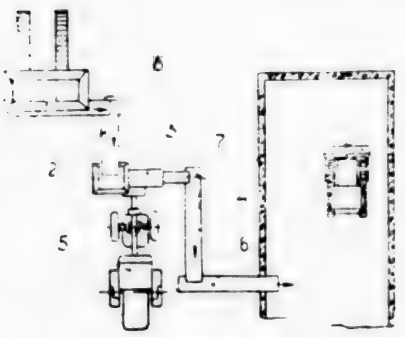



Diagram of a Flow Line Technological Line for the Milling and Storing of Corn Ears

Key:
1. Hydraulic lift
2. Receiving BM-62 hopper-batcher
3. Milling unit
4. Trench

The feed has been preserved well on all of the farms. The nutritional value of the milled ears and grain-cob mixture was 0.78-0.83 feed units and the silage from the leaf and stalk bulk less ears -- 0.18. The feeding of the mixture to young cattle stock at the Severnyy Sovkhoz served to raise the average daily increase in live weight to 729 grams, or 168 grams more than that for a control group which was not supplied with such feed.

The preparation of large quantities of milled grain or ears is carried out at large livestock complexes. Thus, for a hog fattening complex for 35,000 head, with this feed constituting 60 percent of the ration, the annual consumption of the feed amounts to 9,600 tons. Such a quantity can be prepared in six trenches, each holding 1,600 tons. For filling up one trench over a period of 3 days, the productivity of the milling unit must be approximately 60 tons per hour. This requirement is met by the tractor-driven IRM-50 milling unit. Here the ears ideally should be supplied to the milling unit by a modernized PZM-1.5M feeder and the grain -- by a BM-62 hopper-batcher. If a transshipping plan is adopted for delivering the bulk to the milling unit, then the loading will be carried out by two PF-0.5 tractor loaders into a hopper installed above the milling unit.



Installation of Technological Equipment for Processing a Grain-Cob Mixture at the Rogovskiy Sovkhoz in Yegorlykskiy Rayon, Rostov Oblast

Key:

1. BM-62 hopper-batcher
2. Belt conveyer
3. BF-7 crusher
4. Belt conveyer
5. K-701 tractor
6. Belt conveyer
7. Concrete trench
8. Tractor for tamping down the bulk

The use of the technology for preparing milled corn ears and grain of a raised moisture content is making it possible first of all to commence the grain corn harvesting operations 1-2 weeks earlier than usual, as a result of which the fields are made available more rapidly for preparation for the following crops; secondly, it permits more complete use for feed purposes of the grain (ears and grain) and non-grain (leaf and stalk bulk, husks, cobs) portion of the crop; thirdly, it makes it possible to obtain high quality concentrated feed and more nutritious silage from leaf and stalk bulk. In addition, considerable reductions are noted in expenditures for labor, resources and especially fuel, since there no longer is a need for drying the grain and ears. The economic effectiveness realized from the preparation of such feed from corn of waxy and technical ripeness is 4.3 rubles per ton, compared to the traditional preparation of feed from dry corn grain.



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## BRIEFS

FINE CORN CROP--The Gibrid Scientific Production Association has undertaken the task of providing primary seed production for corn. Its scientists and agronomists, by controlling the production of seed throughout the entire technological chain of "field - plant - field", are now providing the branch with a single scientific production discipline. A special committee of the association has accepted the Faleshty Corn Grading Plant -- the republic's largest -- as being prepared for the season. At the present time, a fine crop is ripening throughout the republic, from whence the industrial technology for cultivating this crop was sent out for use on 3 million hectares of corn fields throughout the country. The farmers expect to obtain up to 60,000 tons of 1st generation hybrid seed. The plans call for a considerable portion of this quantity to be shipped to the Baltic region, Belorussia and to the non-chernozem regions of the RSFSR. /Text/ /Kishinov SOVETSKAYA MOLDAVIYA in Russian 29 Aug 84 p 3/ 7026

COMPETITION RESULTS SUMMARIZED--The committee for summarizing the results of the republic's competition for the rapid completion of the corn harvest for grain held a meeting which was chaired by the 1st deputy chairman of the Council of Ministers for the Moldavian SSR. Komratskiy Rayon, which had achieved the highest percentage of fulfillment of the task and which had harvested grain corn from the largest area over the past 5 day period, was declared the winner. Second place was won by the farmers in Vulkaneshtskiy Rayon and third -- Tarakliyskiy Rayon, both of which had achieved maximum results -- over-fulfillment of their tasks by a factor of more than 1.5 and over-fulfillment of the 5-day schedule for harvesting work. The committee singled out the high corn harvesting rates on farms in Orgeyevskiy, Kriulyanskiy and Drokiyevskiy rayons. At the same time, the committee took note of the low rates for the second harvest in Grigoriopolskiy, Kamenskiy, Leovskiy and Rezinskiy rayons. The work is unfolding very slowly on farms in Shondaneshtskiy rayon, which has been criticized repeatedly for unsatisfactory harvesting of silage corn. However the proper conclusions have not been drawn from this criticism. The committee emphasized the fact that the principal cause for the situation which has developed in the mentioned rayons is the low level of labor organization for those participating in the harvest work and also poor use of the harvesting equipment. /Excerpts/ /Kishinyov SOVETSKAYA MOLDAVIYA in Russian 17 Oct 84 p 1/ 7026

CORN HARVEST PREPARATIONS--Odessa, 8 Sep--Thus the time for harvesting the corn is now at hand. This year it has been grown on more than 300,000 hectares

throughout the oblast. Corn harvesting combines have joined in the work in eight rayons. The initial thousands of tons of golden ears have been delivered to the threshing floors on farms in Kiliyskiy, Ivanovskiy, Saratov, Ovidiopolskiy and other rayons. In addition to the kolkhozes, the grain receiving points have also been prepared for the corn harvest. The storehouses and grain receiving points are also prepared for accepting the ears. Special attention has been given to the drying economy. The Sarata Grain Combine, for example, is capable of accepting no less than 600 tons of corn grain daily. /by A. Soldatskiy/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 9 Sep 84 p 1/ 7026

IMPROVED FERTILIZER PLACEMENT--Faleshtskiy Rayon--The Faleshty corn growers are specializing in the production of seed for inter-linear hybrids. In competing to achieve high yields, they attach great importance to applying fertilizer top dressings to the sowings. Following abundant rainfall, the return from top dressings must be high. But it will be even higher if the fertilizer is placed in the vicinity of the plant roots rather than in the inter-row spacings generally. Unfortunately, the KRN-5.6 cultivator used for applying top dressings is not suitable for this work. The machine operators at the Kolkhoz imeni Boris Glavan found a solution for this problem. They adapted a fertilizer spreading unit from the well known SPCh-6 sowing machine, which is not used during the summer, for use on the above-mentioned cultivator. The re-equipping work was carried out by tractor operators K. Khuzun and V. Marku, fitters A. Zubik and M. Koval'chuk and by the chief of a workshop P. Koshokar'. These re-equipped units have already been used for applying a top dressing to more than 100 hectares of corn. The fertilizer is applied directly to the root zone of the plants. /by E. Koliban/ /Text/ /Kishinev SOVETSKAYA MOLDAVIYA in Russian 8 Jun 84 p 1/ 7026

PROGRAMMED CORN YIELDS--The programming of yields aids the republic's corn growers in obtaining stable and high grain yields. Even last year, a very dry one, 80-90 quintals were obtained from each of 7,000 hectares. This year the fields for computed yields will occupy twice as much space in Slobodzeyskiy, Suvorovskiy, Rybnitskiy, Dubossarskiy and a number of other rayons. The farmers intend to consolidate the successes achieved last year. Collaboration between the corn growers and specialists attached to the Plodorodiye NPO /Scientific Production Association/, who developed technological programs for each field for obtaining programmed yields, will aid in achieving the plans as outlined. In conformity with their recommendations, the farms have commenced a very important agricultural measure -- applying established dosages of nitrogen fertilizer to the fields. The timely and high quality carrying out of this operation will serve as a reliable guarantee for obtaining high yields. The Food Program has tasked the agricultural workers of Moldavia with achieving a considerable increase in the production of corn for grain. The introduction of the industrial technology and the successes achieved by the agricultural and biological sciences are opening up extensive opportunities for obtaining programmed yields of 100 or more quintals on the average from irrigated lands. Thus the plans call for the area of irrigated corn to be increased to 35,000 hectares by the end of the five-year plan. /Text/ /Kishinev SOVETSKAYA MOLDAVIYA in Russian 7 Jul 84 p 2/ 7026

WEED CONTROL UNIT--A unit which has been sent out onto the Moldavian fields from the Gibrid Scientific Production Association is raising the effectiveness of the campaign being waged against weeds. It applies herbicides not to the surface of a field but rather under the soil, with the aid of a spraying unit installed on the sweep of a cultivator. An automatic system guarantees control over the operation of all organs of the unit. A chief characteristic of the machine -- its reliability. There no longer are any weeds in the inter-row spacings on corn plantations in Chadyr-Lungskiy, Kotovskiy and Kriulyanskiy rayons, where the experiment was carried out on an extensive scale. The new unit also makes it possible to obtain better solutions for the problems concerned with protecting the environment: the preparations applied to the soil are not washed off into reservoirs by rainfall. The farm economies are also profiting: one unit is able to cope with the application and placement of herbicides and with the pre-sowing preparation of the soil. It bears mentioning that it can be produced in a conventional kolkhoz workshop. /Text/ /Minsk SEL'SKAYA GAZETA in Russian 17 Jul 84 p 1/ 7026

NITROGEN TOP DRESSING--Chernovtsy, 22 Jun--Prolonged rainfall and cold weather have adversely affected the development of corn on farms in Chernovtsy Oblast. The heat-loving plants have turned yellow in color and have fallen behind in their growth. Thus the decision has been made in all areas here to apply a nitrogen fertilizer top dressing to the plantations. /by I. Germakovskiy/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 23 Jun 84 p 1/ 7026

SEED SPECIALIZATION WORK--Kishinev, 28 Aug--The Gibrid Scientific Production Association has undertaken fully the responsibility for delivering corn seed to farms in Moldavia and also to the Baltic region, Belorussia and the Russian nonchernozem zone. The association includes an NII /scientific research institute/, several seed production farms and, of late, a corn grading plant at Faleshty. Today a committee of the association accepted with a grade of "excellent" the largest enterprise to be prepared for the season in Moldavia. This year, for the very first time, its departments will process 10,000 tons of seed for simple corn hybrids. This will be the yield obtained from five of the republic's sovkhozes. Formerly this amount was supplied by 12 farms representing five departments. As a result of large-scale concentration of seed production -- and the hybridization plots are located close to the plant -- the area occupied by seed corn in Faleshtskiy Rayon has been increased fourfold since the beginning of the five-year plan. The transport expenses required for shipping the ears have been reduced twofold. The periods for harvesting the crop have been shortened and the quality of the seed improved. A fine crop is ripening at the present time throughout the republic. The farmers expect to obtain up to 60,000 tons of 1st generation hybrid seed. Almost two thirds of this amount will be shipped beyond the borders of the republic. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 29 Aug 84 p 1/ 7026

GRAIN DELIVERIES EXPEDITED--Ust-Kamenogorsk (KazTAG)--The farmers of this oblast are increasing their sales of grain to the state. "We have handled about 3000 trucks within a 24-hour period," says N. Asylbayev, the deputy chairman of the council of oblast agro-industrial associations. "And, in fact, not a single driver lost time in waiting to be unloaded: in as little time as the 15-20 minutes required to determine the grain quality and weigh and unload the cargo, they were sent on their way again." This is the first time that such an outstanding indicator has been achieved in servicing transport vehicles at elevators during the "peak" hours for processing of grain shipments. Additional conveyer lines were set up in each of the storage facilities for receiving, cleaning and transporting the grain, and time schedules were used for grain shipments. More efficient grain storage techniques have made it possible to achieve a three-fold increase in the turnaround capacity of elevators without expanding existing storage capacity. [Text] [Moscow KAZAKHSTANSKAYA PRAVDA in Russian 4 Sep 84 p 1] 9481

HELICOPTERS AT WORK--The republic's aviators have released a "useful fog" over the sunflower plantations -- the pre-harvest desiccation of the plants has commenced. This agricultural method dries out the sunflower plants while standing and it prevents the development of white and grey mould. The ripening of the heads is accelerated by almost 2 weeks. Special mobile detachments were created for carrying out the desiccation work in each rayon. These detachments ensure continuous operations for the aircraft and helicopter crews. A single schedule is composed which takes into account the moisture content of the sunflower heads and the availability of harvesting equipment on the farms. This involves the participation of specialists from Moldsel'khozkhimiya, kolkhoz and sovkhoz machine operators, the councils of rayon agroindustrial complexes and workers from other departments. The farms in Glodyanskiy Rayon were the first to treat their plants. Immediately after them, detachments for preparing the plantations for harvest operations moved out onto the fields in Drokiyevskiy, Rybintskiy, Ryshkanskiy, Teleneshtskiy and other rayons in the republic's northern zone. This year the decision has been made to treat all of the sunflower tracts from the air. This will aid the farmers in harvesting their crop during the best periods, in fulfilling their high socialist obligations and in selling more than 190,000 tons of oil-bearing seed to the state. /Text/ /Kishinyov SOVETSKAYA MOLDAVIYA in Russian 28 Aug 84 p 1/ 7026

SOWING PREPARATIONS--Having completed their grain harvest work, the Faleshty farmers began carrying out their regular agricultural operations. Desiccation of the sunflower plantings was carried out on more than 2,000 hectares of an overall total of 3,400 hectares. Of 250,000 tons of organic fertilizer procured, more than one third has already been applied to the soil. The plowing detachments are achieving their desired work rhythm. They have already prepared more than 4,000 hectares for winter crop sowing. The tracts on which sugar beets are to be sown are also being prepared in strict conformity with the requirements of the leading technology. /Text/ /Kishinyov SOVETSKAYA MOLDAVIYA in Russian 29 Aug 84 p 2/ 7026

RIPENING OF SUNFLOWERS--It is not only the weather that is dictating the periods for harvesting the sunflowers this year: the farmers themselves are controlling the precise day for the ripening of the tracts. In the tactics for the harvest campaign which has already commenced, they have included the differentiated desiccation of the plants in all areas. This maneuver, carried out in past years in Glodyanskiy Rayon, makes it possible to prevent losses

caused by the simultaneous ripening of the sunflowers on all fields. The heads are now being dried out as the combines become available. Already the initial yields amount to 30 quintals of oil-bearing seed per hectare. The harvest campaign began on tracts of highly productive early hybrids of both domestic and foreign selection, which this year account for one half of the republic's tracts. They differ from other plantings in terms of their height and the size of their tightly packed heads. The successful development of the new hybrids has been promoted by use of the industrial technology -- herbicides have been used against weeds on the entire area. /Text/ /Kishinyov SOVETSKAYA MOLDAVIYA in Russian 8 Sep 84 p 2/ 7026

SUNFLOWER SEED PRODUCTION--Moldavia has become the largest supplier of sunflower seed for all of the union republics. Five of its rayons have been combined into a hybridization zone, with each farm participating in the creation of a gold fund for the crop. The initial results of the harvest campaign which has just started here exceed to a considerably degree the original plans: each hectare is furnishing more than 10 quintals of seed. This year the farmers plan to produce 10,000 tons of hybrid sunflower seed. Ninety percent of this seed will be shipped beyond the borders of the republic. /Text/ /Tashkent PRAVDA VOSTOKA in Russian 13 Sep 84 p 1/ 7026

LARGEST SUPPLIER OF SEED--Moldavia has become the largest supplier of sunflower seed for all of the union republics. Five of its rayons have been combined into a hybridization zone, with each farm participating in the creation of a gold fund for the crop. The last of 10 complexes to be created this year for processing the oil-bearing seed has commenced operations here. These complexes have been erected at kolkhozes having the largest hybridization tracts. These enterprises are performing high quality work based upon the use of special equipment for the primary cleaning of the sunflowers, powerful dryers and production lines for the processing of seed. Upon the completion of this processing, the material is ready for sowing. The sunflower seed tracts occupy a general area of 14,000 hectares -- a type of island in the southern part of the republic. Around this island there is a ring 5 kilometers in width which isolates it from the commodity sunflower plantations. This measure ensures the sterility of the seed and protects it against contamination by diseases and pests. This technology was developed by scientists at the Selektsiya NPO /Scientific Production Association/. With the assistance of this association, seed hybrid sunflowers rapidly took over a large aread of fields; it was only 3 years ago that the propagation of seed for this valuable oil-bearing crop began. The harvest work has just now commenced on the hybridization tracts. The combines are being operated at the lowest speed in order to ensure that the entire crop down to the last grain is harvested. The initial yields exceed the planned ones by a factor of 1.5: each hectare is furnishing more than 10 quintals of seed. This year the republic's farmers plan to produce 10,000 tons of high quality sunflower seed, with 90 percent of this amount being shipped beyond the borders of the republic. /Text/ /Kishinyov SOVETSKAYA MOLDAVIYA in Russian 20 Sep 84 p 1/ 7026

RECORD PEA HARVEST--East Kazakhstan Oblast--Farmers of the Ubinskiy sovkhoz in Shemonaikhinskiy Rayon have obtained a record harvest of "perennial" peas. The yield from 500 hectares sown to this crop was 41 quintals of pods per hectare. Brigade number seven at the Veselovskiy sovkhoz in Glubokovskiy Rayon realized an average yield of 39 quintals. The oblast-wide average harvest for these peas amounted to 24.5 quintals. More than 23,000 tons were sold to the state, with plan requirements set at 20,000 tons. [By P. Shchuplov] [Text] [Moscow KAZAKHSTANSKAYA PRAVDA in Russian 7 Sep 84 p 1] 9481

INDUSTRIAL TECHNOLOGY--Use of the industrial technology for growing corn at kolkhozes and sovkhozes in the Kuban is viewed as being a great achievement by our practical workers and by science. As a result of the skilful use of this technology, the kray's farms obtained an average of more than 42 quintals of grain per hectare from an area of 320,400 hectares in 1982. The leading rayons, farms and brigade obtained even higher yields. Despite a number of shortcomings, the use of this technology proved to be justified on the whole. However, the need for retaining moisture in the soil, raising fertility and reducing electric power and material expenditures, while further increasing the grain corn yields, requires improvements in the cultivation technology for this crop. /Excerpt/ /Krasnodar SEL'SKIYE ZORI in Russian No 5, May 84 p 36/ /COPYRIGHT: "Sel'skiye zori", 1984/ 7026

FROM SEED PLANTATIONS--Krasnodar, 6 Sep--The machine operators at kolkhozes and sovkhozes throughout the kray have commenced their mass harvesting of grain corn, which occupies approximately 270,000 hectares. Dozens of corn harvesting complexes and hundreds of motor vehicles have moved out onto the plantations. Many farms are employing the non-transshipment method of operation, wherein the corn is sent directly from the fields to the grading plants. The Kuban machine operators are first of all harvesting the seed production plantings, which occupy 78,000 hectares. No less than 250,000 tons of seed for this crop must be sold to the state. /by Yu. Semenenko/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 7 Sep 84 p 1/ 7026

CORN SOWINGS EXPANDED--Minsk--The farmers in Brest and Gomel oblasts, who completed their sowing of corn considerably earlier than usual, resolved to obtain not only an abundant crop of fodder but also ripe ears. The kolkhozes and sovkhozes in the remaining zones of Belorussia are completing this work at a rapid tempo. They are basing their work upon the experience of leading workers, who last year obtained 40-60 quintals of corn grain per hectare. The farms are expanding their sowings of this crop to 350,000 hectares. On many farms, the use of the industrial technology for growing corn has been entrusted to contractual mechanized teams. /Text/ /Moscow TRUD in Russian 13 May 84 p 1/ 7026

SEED FOR FARMS--Ordzhonikidze, 10 Sep--The receiving points and grading plants in the North Osetian ASSR are now beginning to receive the golden ears of corn from the new crop. This year the republic's corn growers plan on

shipping more than 90,000 tons of seed to the country's farmers. This amount will be sufficient for sowing more than 4 million hectares of fields. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 11 Sep 84 p 1/ 7026

NORTHERN OSETIAN CORN FIELDS--Ordzhonikidze, 22 Sep--A great amount of work is being carried out on the corn fields in the North Osetian ASSR. The farms in Mozdokskiy Rayon are obtaining good size ears. Thirteen harvesting-transport complexes and detachments have joined in the work here. /by S. Lorsanukayev/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 23 Sep 84 p 1/ 7026

ALL RESERVES IN OPERATION--Voronezh, 28 Jun 84--The oblast's farmers are placing in operation all of the reserves of the agroindustrial complex. At the present time, a great amount of attention is being given to the cultivation of corn. The corn growers in Kantemirovskiy Rayon are actively carrying out their work of cultivating the ears. The machine operators at the kolkhozes Luch Oktyabrya and imeni Karl Marks, the Pisarevskiy Sovkhoz and other farms have thinned out their summer sowings. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 29 Jun 84 p 1/ 7026

SILAGE AND GRAIN FORAGE--Kursk, 9 Oct--The oblast's kolkhozes and sovkhozes have developed a fine crop of corn this year. The ensiling of it is nearing completion. In those areas where the ears have ripened, the harvest is being carried out using grain combines equipped with PPK-4 attachments. The ears are thereafter minced and stored in trenches. In timskiy Rayon, six such units were formed into a detachment and carry out work at farms in accordance with a schedule. In the process, they are placing the bulk in storage in a rapid manner, a point which is of considerable importance with regard to raising the quality of the feed. This experience is being employed extensively in other rayons. On those farms where there is a shortage of equipment, the manual harvesting of the ears has been organized. /by A. Trubnikov/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 10 Oct 84 p 1/ 7026

SURPLUS GRAIN STOCKPILED--East Kazakhstan Oblast--Farms in Zyryanovskiy Rayon are conducting harvesting operations organized according to a strict timetable. With the aim of ensuring rapid and loss-free harvesting of more than 42,000 hectares of cereals, about 5000 hectares of sunflowers, and more than 1200 hectares of potatoes, we have set up 23 enlarged, mechanized, multi-purpose work units headed by experienced, professionally skilled party members. Both grain harvesting and productivity levels are continuing to increase. Whereas yesterday our average yield was 22 quintals of grain, today it is up to 24--and tomorrow it will be 26. Harvest workers in Zyryanovskiy Rayon have committed themselves to shipping out 73,000 tons of cereals--9000 tons in excess of the plan--to state graneries. They are determined to successfully complete the four-year program and establish a dependable stockpile against next year's harvest. Our grain growers are tenaciously working to meet this objective. [By G. Sorokovykh, first secretary of the Zyryanovskiy raykom] [Excerpts] [Moscow KAZAKHSTANSKAYA PRAVDA in Russian 29 Sep 84 p 1] 9481

ABOVE-PLAN SUNFLOWER SALES--Cherkassy, 12 Oct--The oblast's farmers have grown a fine crop of sunflowers and are completing their harvest of this valuable oil-bearing crop. The agricultural workers in Chigirinskiy Rayon were the first to fulfill their plan for the sale of oil-bearing seed. They shipped almost 30,000 quintals of oil products to the state granaries against a plan calling for only 27,400 quintals. The farmers in Cherkasskiy Rayon fulfilled their plans for sunflower sales. They shipped 14,200 quintals of oil-bearing seed to the procurement points against a plan which called for only 13,900 quintals. The above-plan sale of sunflowers is continuing. /by S. Luzgan/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 13 Oct 84 p 1/ 7026

ROW CROP CULTIVATION--Odessa, 12 Jun--In early June the Oblast's fields received a long-awaited rainfall. The row crops entered into vigorous growth while the grain ears were ripening. But the weeds were also developing. This is why the cultivation units were included in the operations in all areas. At the kolkhozes Put' K Kommunizmu, imeni Suvorov and a number of other farms in Nikolayevskiy Rayon, the machine operators are completing their second inter-row tilling of sugar beets. Fertilizer is being applied to the soil simultaneously. Tractor operators I. Velikiy, A. Matyushchenko and I. Kolomiychuk of the Pamyat' Il'icha Kolkhoz are tilling their sunflowers and fulfilling the norm by 150-170 percent. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 13 Jun 84 p 1/ 7026

SUNFLOWER SEED SALES--Kiev--The Ukrainian farmers are employing wide-swath units for tending their sunflowers. This is making it possible to shorten the work periods by 50 percent. In this republic which produces almost one half of the entire production of oil-bearing seed, sunflowers are grown on approximately one and a half million hectares. This season the republic's agricultural workers have vowed to sell approximately 2.3 million tons of oil-bearing seed to the state. /Text/ /Moscow TRUD in Russian 24 Jun 84 p 1/ 7026

EFFECTIVE HYBRIDS--Odessa, 25 Jul--In recent years a considerable amount of work has been carried out in our country associated with the breeding and introduction into production operations of hybrid sunflower seed. An all-union seminar held in Odessa was dedicated to an experiment in organizing the production of seed for sunflower hybrids. In the report by the chief of USSR Sortsemprom S.F. Borshch, further tasks were defined for developing the branch and for improving seed production work. /by A. Soldatskiy/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 26 Jul 84 p 1/ 7026

NEW SUNFLOWER VARIETY--Many domestic sunflower varieties and hybrids have no equal in terms of oil yield. But their true potential is realized only in those areas where there is adequate warmth and the plants are able to ripen prior to the onset of the period of bad autumn weather. In zones characterized by a brief summer, the sowings are often subjected to rainfall and even the initial frosts prior to being harvested. This is why agricultural production requires a sunflower with a brief ripening period and which at the same time retains a high productivity. This extremely important order on the part of the farmers was carried out by scientists at the Ukrainian Scientific Research Institute of Field Crop Husbandry, Breeding and Genetics, who produced the new Khar'kovskiy Skorospelyy variety. Tests carried out on the institute's fields

and at strain testing stations have shown that the Khar'kovskiy Skorospelyy variety is distinguished by early and rapid ripening. And in terms of the oil content of its seed, it surpasses not only varieties of the rapid ripening and early ripening groups but also the midseason ripening group. According to data supplied by a number of strain testing stations in the Ukraine and the RSFSR, the growing season for the KHar'kovskiy Skorospelyy sunflower variety is 14-20 days shorter than that for midseason ripening varieties and its potential yield is 30-33 quintals with an oil percentage of 57-59 percent. /by N. Demikhovskiy/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 24 Aug 84 p 3/ 7026

SOWING AREA EXPANDED--Odessa 6 Sep--An expansion is taking place in the areas to be used for the growing of high yield sunflower hybrids, developed during this current five-year plan at the All-Union Breeding-Genetics Institute and on farms in the Black Sea region. This year these hybrids will be grown on 40,000 hectares -- one fourth of all sowings of this crop. Belgorod-Dnestrovskiy Rayon, where the plans call for 3,000 tons of high quality seed to be obtained, has become a zone for the guaranteed production of hybrid seed. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 7 Sep 84 p 1/ 7026

HIGH SUNFLOWER YIELD--Zaporozhye, 18 Sep--The oblast's farmers, who have commenced the mass harvesting of sunflowers, have become convinced concerning the advantages offered by the new sunflower varieties and hybrids. In particular, the VNIIMK 8883-uluchshennyy variety has proven its worth. On farms in Volnyanskiy Rayon, where it is being cultivated using an industrial technology, 18 quintals of oil-bearing seed per hectare are being obtained. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 19 Sep 84 p 1/

CSO: 1824/075

## FEED PROTEIN PRODUCTION, SUPPLY PROBLEMS DISCUSSED

Moscow SEL'SKAYA ZHIZN' in Russian 20 Oct 84 p 1

/Article by M. Zarayev: "A Protein Additive"/

/Text/ During a conversation with a director of a large and recently built poultry factory, I asked: why does an enterprise need its own feed preparation shop when there is a mixed feed plant of the Ministry of Procurements close at hand? The mixed feed contains all that is required for poultry: there is good reason for it being referred to as a complete ration.

"If that were so" replied the director with an ironic smile, "We would have to pass everything which we receive from our neighbor through a laboratory and thereafter we would necessarily have to enrich it with vitamin meal, for which purpose we have our own lands, and with meat and bone meal in the form of a protein additive. We are fortunate in having our own slaughtering shop. We would not have to travel very far to obtain that which the plant is supplying."

Imagine for a moment a machine building plant which, upon receiving metal, sends it to a furnace for melting down prior to being placed in operation. Here chrome, nickel, manganese or other elements are added. Is this not a fantastic picture? Yet a poultry factory is just as much an industrial enterprise as is a machine building plant. Why then must it enrich the products obtained from allied workers?

Modern mixed feed is viewed by specialists as being a complex multiple component compound which in addition to grain contains diverse types of protein raw material of plant and animal origin, macro and micro-elements, vitamins and other biologically active substances. A shortage in just one of these components can adversely affect the industrial technology employed in animal husbandry.

But what is the solution for a mixed feed plant where there is a shortage of protein raw material? There is a simple solution -- substitute grain for it. This year the planned indicator for grain content in mixed feed produced at enterprises of the USSR Ministry of Procurements is 71 percent. Thus protein additives and other components will account for 29 percent. Is this a large or small amount. Extremely small. It bears mentioning that in a number of countries with well developed animal husbandry structures the mixed feed consists of 40, 50 or more percent of protein additives.

Why is it that our proportion of grain raw materials is so great when we have tremendous volumes of materials obtained from the processing of meat and milk, the catching of fish, the cultivation of cotton and sunflowers and from forest exploitation work. Indeed, such operations enable us to obtain meat and bone meal, oil-seed meal and nutrient yeasts. Inquiries concerning each of the mentioned sources of protein reveal an intertwining of departmental and local interests and all types of barriers hindering the use of production reserves.

For example, let us take oil-seed meal. A shortage of sunflowers is explained in terms of non-fulfillment of the plan for the production and purchases of seed. But the situation is better in the case of cotton.

"Each year we receive letters from Uzbekistan" I was informed at Glavkombikormprom /Main Administration for the Mixed Feed Industry/ of the USSR Ministry of Procurements, "The local organs have requested that all of the cotton oil-seed meal be kept in the republic. Certainly, the livestock can be fed at the sites. But why should the country's mixed feed plants be held back? We are providing Uzbekistan with as much as the republic requires for the production of mixed feed and the remainder we are sending to the centralized fund for redistribution among the other republics.

But it is not always possible to do this. In Azerbaijan they do not perform in a resolute manner. Practically all of the oil-seed meal produced at the Kirovabad Oil and Fat Combine remains at the site. It is maintained that there is a need for this. But if such a method is to be followed, than Latvia must retain its fish meal; oblasts where biochemical plants are located -- the nutrient yeasts. Each region will feed its livestock that which it produces, thus burying in oblivion the requirements for planning discipline and inter-branch relationships.

Certainly, such an approach cannot be tolerated. There is good reason for the USSR Ministry of Procurements being authorized to allocate and distribute the raw materials for mixed feed production on a centralized basis. Unfortunately, owing to opposition in the various areas, this right is not always exercised. It is not only oil-seed meal for which there is a reluctance to part with in the areas where it is produced. The situation is even more acute in the case of dry sugar pulp residue, which the beet growing oblasts almost never return to the centralized fund. As a result, the deliveries of this product to the mixed feed plants do not exceed 8-10 percent of the plan. The requirements for oil-seed meal are being satisfied by only 50 percent. Of 6.7 million tons needed for the production of mixed feed, only 3.1 million tons are being supplied. And the difference is being made up by grain.

Greater attention must be given to the production of feed protein of non-plant origin. The sources for this protein are very diverse: from the slaughtering of livestock and poultry, the blood of which is of tremendous value, to the processing of milk, which leaves rivers of separated milk. The passing of these by-products through drying units is equivalent to making hundreds of thousands of tons of feed protein available for economic use. But all too often the lack of appropriate equipment and problems in the introduction of a waste-free technology for the processing of meat and milk lead to substantial losses.

Full-value protein contains nutrient yeasts, the amino acid structure of which is close to that of proteins of animal origin. SEL'SKAYA ZHIZN' recently published an article on the difficulties being encountered in mastering the planned capability of the Manturovo Biochemical Plant in Kostroma Oblast. There are also other enterprises in the microbiological industry which operate on a reduced production basis. In the meantime the requirements for their products are being satisfied by only 50 percent.

The range of problems advanced by an analysis of the structure of mixed feed is indeed great. If all of its types are considered, it contains approximately 100 components produced by various national economic branches. And success in the production of animal husbandry products and in ensuring that our Soviet people are adquately supplied with them is dependent to a large degree upon the proper coordination of their activities.

7026
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## LIVESTOCK WORKER REMUNERATION IN WINTER PERIOD EXPLAINED

Moscow EKONOMICHESKAYA GAZETA in Russian No 41, Oct 84 p 16

[Article: "Cattle During the Winter Period"]

> [Text] Preparations are now underway in the kolkhozes and sovkhozes to move the cattle to their winter keep. Along with the setting up of a stable feed base and the adjustment of all the farms' and food preparation shops' equipment, the establishment of favorable conditions for the work of animal breeders and the correct utilization of production material incentives is very important. R. Bogdan-Blakitniy, deputy chief of the Main Administration of Labor and Social Issues with the USSR Ministry of Agriculture, informs us of several particulars dealing with the remuneration of workers in this branch during the winter.

In animal husbandry, remuneration is made on the basis of the quantity and quality of production, e.g., milk yield, offspring, weight increase, wool yield, and the number of eggs. The conditions of remuneration and specific wage-rates for production need to be worked out for animal breeders on every farm of the kolkhozes and sovkhozes. For instance, wage-rates for milk on those farms where production is uneven owing to seasonal factors are different.

Let us assume, based on the annual norms of production, i.e., milk yield and the milkmaids' annual wage fund, that the wage-rate for a centner of milk is two rubles. However, if we consider that the milk yield is greater when the livestock is pasturing and less during the fall and winter when it is no longer pasturing, then the annual wage-rate will not be equally divided among the 12 months of the year. For example, remuneration for a centner of milk during pasturing will be 1 ruble 60 kopecks, while during stabling, it will be 2 rubles 30 kopecks. On the other hand, alongside the animal breeder's basic wage for production, a supplemental wage has been set up to provide incentive for increasing production, better care for individual head of cattle and poultry, increase the output of young stock, and enhance product quality of the production gained.

We must also take into account that if the total amount of supplemental wages paid out to animal breeders for their good work exceeds their monthly take-home pay, the excess over these monthly wages needs to be taken from the farm's

material incentive fund. Overall, we need to utilize the resources of this fund more extensively to provide incentives to our animal breeders, especially during the intense stabling period. This will improve the work indices in both animal breeding and cattle fattening.

In extremely bad weather, when provisions for the livestock are sharply reduced, decisions can be made for individual oblasts and rayons with regard to changes in the remuneration of animal breeders in order to safeguard the livestock under these conditions and extract the greatest amount of production.

As a rule, the decision in these instances is made jointly by the USSR Ministry of Agriculture and the Central Committee of the Agricultural Workers' Trade Union; this decision amounts to the following: Individual farms where extremely unfavorable conditions have set in with regard to the feed provisions of the animals may review the animal breeders' existing wage structure and establish temporary wage-rates for the care of the animals by alloting up to 80 percent of the 125 percent of the tariff wage fund and calculating a wage-rate for production with the rest of the fund.

This year, a number of rayons in the Russian Federation has experienced rather unfavorable weather conditions. As a result, feed provision for livestock will be lower during the 1984-1985 stabling period. Based on this conclusion, the USSR State Labor Committee on Labor and Wages, the Ministry of Agriculture, and the Central Committee of the Agricultural Workers' Trade Union introduced changes in the animal breeders' wage system; these changes are aimed at securing the workers' interest in extracting the greatest amount of production despite shortages in feed. Wage changes resulting from feed shortages are introduced for a limited time and should be implemented within the limits of the farm's wage fund.

In our concern to provide incentives to animal breeders working in dairy cattle raising, we should not forget that these measures apply totally to workers engaged in raising and fattening cattle, and in swine, sheep and poultry breeding as well; in other words, these measures apply to all workers within the branch.

In a number of rayons, RAPO specialists, together with farm specialists and managers are working on recommendations based on a comprehensive analysis; these recommendations should determine the indices according to which supplemental wage amounts need to be established. As a result, the sums of single bonus payments should be repaid with interest through additional production.

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# PROGRESS OF HOG RAISING IN LITHUANIA DISCUSSED

Moscow SVINOVODSTVO in Russian No 9, Sep 84 pp 4-6

/Article by V. Stankyavichyus, deputy minister of agriculture for the Lithuanian SSR: "Raising the Intensity of the Branch"/

/Text/ A comparatively high level of pork production has been achieved in the Lithuanian SSR. The branch is developing successfully and it is gradually being converted to an industrial basis. A number of measures have been implemented throughout the republic aimed at raising the intensity of hog raising, introducing the collective contract into operational practice, encouraging farms to create their own feed base and achieving economies in the use of energy resources. Work is being carried out directed towards creating new intra-strain types of hogs and direct contacts are being established between the farms and the meat combines.

The achievements and problems of Lithuanian hog raising are discussed in the selection of articles published below.

Hog raising is the second branch of animal husbandry in our republic. Of the overall volume of meat being produced annually, the proportion represented by pork is increasing and in 1983 amounted to 40 percent. This was 4 percent more than the average for the years of the 10th Five-Year Plan and 7 percent more than that for the years of the 9th Five-Year Plan. The increase in production was achieved as a result of an increase in the number of animals, intensified raising and fattening operations and an increase in the number of hogs sold.

Hog raising is well developed on farms in Pasvalskiy, Ionishkskiy, Panevezhskiy and Shirvintskiy rayons, where more than 120 quintals were obtained per 100 hectares of arable land and the proportion of pork with regard to the overall volume of meat is 52-59 percent. Especially fine results in the production of pork were achieved last year at the kolkhozes Sotsialistiniskyalyus and Pyargale in Plungeskiy Rayon, imeni P. Tsvirka in Moletskiy Rayon, Draugas in Radvilishkskiy, Ritu Aushra in Kedaynskiy Rayon and others, which sold more than 200 quintals of pork per 100 hectares of arable land.

The intensive fattening of hogs is being carried out successfully throughout the republic. Last year, in the Lithuanian SSR, 97 kilograms were obtained on

the average from each hog available at the beginning of the year and on farms in Kaunasskiy, Ionavskiy, Kedaynskiy and Trakayskiy rayons -- 115-125 kilograms. The number of farms which achieved an average daily weight increase during fattening of more than 450 grams increased during the year (1982-1983) by more than twofold; on 66 farms the hogs produced an average daily weight increase of 550 grams during fattening. The economic indicators for pork production were raised considerably. Feed consumption per quintal of weight increase and direct labor expenditures at kolkhozes throughout the republic fell by 8 percent, production costs -- by 7 percent and the profitability of hog raising operations was raised considerably.

Nor did the rates for increases in pork production decline during the winter period. Over a period of 6 months (October - March 1983/84), the increase in live weight in hogs on public farms increased by 3.5 percent compared to the same period for 1982/83.

However, for the republic as a whole we are still not satisfied with the indicators for the intensity of hog raising operations. Although in 1977 the average daily weight increase in hogs during fattening was 471 grams, with 113 kilograms of pork being obtained from each head, in recent years the rates for development of the branch have declined owing to a shortage of concentrated feed. In 1983 the average daily weight increase was 437 grams and thus was 40 grams more than in 1982.

At the present time, the number of hogs in the republic has reached a rather high density and thus the chief path to be followed by the branch is that of raising its intensity. We consider the chief task to be that of strengthening the feed base and particularly -- increasing the production of forage grain as the principal feed for hogs.

At the same time, we are striving to procure greater quantities of other types of feed. Thus, 136,000 tons of mixed silage for hogs, or 2 tons for each sow, were placed in storage last year and the animals were fed 54,400 tons of grass meal, 483,900 tons of succulent feed and 31,100 tons of food scraps.

The protein deficit in hog rations has become more noticable in recent years. Thus the plans for the next few years call for the farms to grow pulse crops on not less than 27 percent of their feed fields.

At the present time, there are 100 shops of the OKTs type in operation on the republic's farms. Last year, using protein-vitamin additives, they produced 300,000 tons of mixed feed and concentrates for hogs. The capabilities of the mixed feed industry are being employed on an extensive scale for enriching internally produced feed with mineral and vitamin additives. The farms exchanged 375,000 tons of grain from last year's harvest for mixed feed.

Recently, greater use has been made of lysine for feeding to hogs. Approximately 3,000 tons of this amino acid in liquid form will be used this year. According to computations by the Lithuanian Scientific Research Institute of Animal Husbandry, the lysine deficit in hog rations is rather great (in a conversion for liquid, approximately 15,000 tons). In order to solve this problem, the republic's mixed feed industry must be supplied with dry lysine.

Hog raising operations in the Lithuanian SSR are rapidly being converted over to an industrial basis. The level of concentration in the branch is being raised and the logistical base is being improved. Capital investments are being employed for the expansion, reconstruction and modernization of existing hog raising farms up to the optimum capacities (3,000 - 4,000 - 6,000 hogs annually).

All of the farms are presently engaging in hog raising operations, with an average of 2,000 head being maintained at each one of them. Over a period of 4 years, the number of farms maintaining more than 3,000 hogs increased by a factor of almost 1.5. There are 32 inter-farm hog raising enterprises and large complexes in operation in the republic. Last year, the increase in meat at these facilities was twice as great as the figure for 1980. The complexes are achieving fine production and economic indicators: during 1983, on the average for all of the hog raising enterprises and complexes, the average daily weight increase in the hogs during raising and fattening was 470 and during fattening alone -- 570 grams. Seven complexes raised the last indicator to 600 grams. In order to obtain 1 quintal of weight increase, 5.3 quintals of feed units were consumed and 5.9 man-hours expended. Production profitability was 35.5 percent.

In rayons where the farms or inter-farm associations are able to satisfy completely the feed requirements of the complexes, the plans call for the capabilities of the latter to be expanded.

Branch concentration is making it possible to introduce progressive technologies into operations on a more extensive scale. At the present time, one half of all of the animals are being maintained on farms which produce goods using the flow line method and it is from these farms that 56 percent of the pork is being obtained.

Simultaneously with raising the level of concentration and specialization, improvements are being carried out in the maintenance conditions for hogs and also in the working conditions of the operators. Seventy six percent of the hog farms are completely mechanized at the present time. All of these measures are making it possible to raise the intensity of the hog raising and fattening operations and also the safeguarding of the hogs, as proven by the experience of our leading farms: the kolkhozes Yirvint in Shirvintskiy Rayon, Baryunay in Ionishkskiy Rayon, Rokay in Kaunasskiy Rayon, Shvesa in Varenskiy Rayon and Grizhuva in Kelmeskiy Rayon, the experimental farms of the Lithuanian Scientific Research Institute of Farming and the Lithuanian Scientific Research Institute of Animal Husbandry and also the training farm of the Lithuanian Veterinary Academy and others.

Breeding work in hog raising is being directed by a republic trust of breeding enterprises and out in the various areas -- by inter-rayon breeding enterprises with rayon branches which are suborinate to it. The Lithuanian Scientific Research Institute of Animal Husbandry is carrying out scientific and methodological work concerned with breeding problems.

The principal work concerned with improving the productive qualities of hogs is being carried out at breeding farms. For the purpose of ensuring the number of boars required for crossing purposes, there are six breeding farms specializing

in the Landrace strain: two of them are raising Danish animals, three -- German (FRG) and one -- animals of Swedish breeding. Hogs of the large white strain are being bred at one breeding farm. In addition, a breeding basis has been established at the breeding kolkhozes Draugas and imeni Chernyakhovskiy in Radvilishskiy Rayon for hogs of the Yorkshire strain, imported from Sweden. It bears emphasizing that they are breeding hogs using the method of closed populations, developed by the Lithuanian Scientific Research Institute of Animal Husbandry.

Special attention is being given to improving the meat and fattening qualities. They are being evaluated at fattening control stations which have been organized on farms that are directly subordinate to the Ministry of Agriculture for the Lithuanian SSR. There are six such stations and thus it is now possible to evaluate all of the boars being maintained on breeding farms which are less than 2 years of age. Last year the fattening control stations provided evaluations on 349 boars and 1,618 sows, the offspring of which on the average achieved a live weight of 100 kilograms within 187 days, with the average daily weight increase during the control period being 734 grams and with 3.8 feed units being expended per kilogram of weight increase.

The breeding farms are satisfying completely the requirements of the hog complexes and commodity farms for young stock. Last year, they raised and sold for breeding purposes 67,300 animals (49,000 of this number were sold to hog complexes and commodity farms within the republic). In recent years the republic's farms have been supplied with 40 pedigree young hogs by the breeding farms for every 100 sows. The commodity farms are also using only 1st class boars.

The republic's well organized breeding operations are the result of noticeable improvements in the quality of the hogs on all of the farms. Last year, according to hog appraisal data, 1st class sows accounted for 80 percent of their overall number; the polycarpic effect for sows was 10.1 per farrowing and where checks were carried out -- 8.7 young pigs per farrowing. Over a year's time, an average annual sow in the republic produced 19.6 young pigs. In some rayons the polycarpic effect for sows exceeds 11 and where checks were carried out -- 9 young pigs per farrowing.

Crossings of the Lithuanian white hogs with boars of the Landrace and Yorkshire strains are being introduced into operations on an extensive scale on commodity farms and at hog complexes. Last year, hybrid young hogs accounted for 39.6 percent of the overall increase in hogs. Use of the heterosis effect is making it possible to improve the quality of the pork and also to increase the productivity of the animals.

The maintenance conditions for sows with young pigs and replacement young stock are improving from year to year. As a rule, the farrowings are carried out on the farms in pigsties that are well heated in the winter. In the summer the principal herd and the replacement young stock are transferred to summer camps, from which the breeding farms obtain approximately 52 percent of all of the young pigs. The task has been assigned of ensuring that summer camps are built for the hogs on all of the farms over the course of the next few years.

In order to improve the quality indicators and achieve greater efficiency in the organization of livestock purchases, contacts between the farms and the meat combines have been developed and are constantly undergoing further development. The animals are accepted by representatives of a meat combine directly on the farms, the accounts for them are settled on the basis of live weight and they are transported in vehicles made available by the enterprise. This makes it possible to use the livestock carriers in an efficient manner (each will transport 1,500 tons during a year's time). The livestock deliveries are carried out strictly according to a schedule, thus ensuring rhythmic operations by the meat combines.

Last year, 361,000 tons of livestock, or 73 percent of the overall purchases of cattle and hogs, were accepted in this manner. Measures are being undertaken to ensure the complete conversion to the system of livestock being accepted directly on the farms and to centralized shipments of the animals by means of specialized transport vehicles provided by the meat combines, with this work to be completed by 1986.

An increase is taking place in the role played by the private plots of citizens in increasing the production and sale of meat to the state. Almost all of the meat is being purchased from the population in conformity with agreements concluded earlier between the farms and local residents. This is raising the responsibility of the kolkhozes and sovkhozes with regard to the development of the private plots and it is also improving the organization of purchases. Last year the population sold 55,800 tons of pork in live weight to the state. The comparatively high level of development of animal husbandry on the private plots results from the fact that the kolkhozes and sovkhozes are selling them adequate numbers of young pigs and poultry stock, providing feed and furnishing assistance in selling their output. In recent years the public farms have been selling 680,000-715,000 young pigs to the population annually, or 137 head per 100 farmyards. As a result, the population sells a large portion of the fattened hogs (479,000 head) to the state. Experience accumulated over a period of many years reveals that a planned combination of public production with the development of private plots promotes improvements in the use of labor resources in the rural areas, especially pensioners and housewives, and it also makes it possible to increase the production and sale of meat to the state.

Fine conditions have been created for the republic's animal husbandry workers: Today there is no longer any need for nighttime labor, comfortable recreation rooms are available on all of the farms. A great deal is being accomplished with regard to providing more civic improvements on the farms.

However, according to computations by the Lithuanian Scientific Research Institute of Agricultural Economics, the requirements for personnel in the mass animal husbandry professions are greater than the number available and the needs of the farms for such workers are being satisfied by only 86 percent. As a result, some workers on individual hog farms are overworked. Thus the training of skilled workers for this type of work is presently being carried out on an extensive scale. Last year, approximately 1,500 young men and women commenced programs at professional technical schools.

Progressive forms for labor organization and wages are persistently being introduced into operational practice. In 1983, 1,015 animal husbandry brigades

teams converted over to use of the collective contract. It is expected that by the end of this year approximately 1,250 brigades and teams on farms of the Ministry of Agriculture for the Lithuanian SSR will be operating on the basis of collective contracts.

Within the republic a labor rivalry is developing successfully among the rayons, farms and also individual livestock breeders. Each quarter a bulletin is published concerning the socialist competition among the hog breeders. We are proud of such masters of their work as kolkhoz members B. Garmuvena (Ritu Aushra in Kedaynskiy Rayon), O. Karovlena (Dauenay in Posvalskiy Rayon), M. Bendorena (Zhelsvyale in Kapsukskiy Rayon), Ya. Pyalyatskena (imeni M. Mel'nikayta in Kelmeskiy Rayon) and others.

The course presently being pursued -- intensification of the branch -- is promoting an increase in the republic's meat resources and the successful carrying out of the tasks set forth in the USSR Food Program.



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# LITHUANIAN HOGBREEDING COMPLEXES DISCUSSED

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[Article by R. Popovas, director of the administration of livestock raising of the Lithuanian SSR MSKh [Ministry of Agriculture]: "Hogbreeding Complexes: Achievements and Problems"]

[Excerpts] The creation of new and expansion of existing inter-enterprise and intra-enterprise hogbreeding complexes is possible in the republic only under conditions of elaborated technical-economic foundations which foresee the introduction of progressive technology, an increase in production output, an increase in labor productivity, a decrease in costs and the provision of feed supplies.

In the future it is planned to continue, based on plans, to implement the transition of livestock raising to an industrial base on the basis of building large complexes as well as by overall mechanization of production processes in new and existing pigpens in kolkhozes and sovkhozes.

At the present time 32 hogbreeding complexes are operating in the republic--29 are enterprises with a closed cycle and three receive piglets and raise them to the age of 3-4 months.

Operations of inter-enterprise hogbreeding complexes (there is a total of 28 in the republic) are evaluated at report meetings with the representatives of enterprises-participants in cooperation, as well as in balance committees of rayon agricultural administrations. Moreover,the reports of directors of these enterprises related to fulfilling tasks on the production and sale of products to the state (credited toward plans established for participating enterprises) are heard at RAPO councils. At the time of annual republic meetings, to which the directors and specialists of hogbreeding complexes are invited, an analysis is made of the operations of all enterprises during the past period; shortcomings and internal reserves and ways to improve the operations of enterprises in the future are determined. The work of individual complexes is evaluated at meetings of the board of the republic's agricultural ministry and the presidium of the republic's kolkhoz council.

The operation of the first livestock-raising complexes built in the republic according to typical designs showed that a number of accepted design decisions

A number of medical-prophylactic schemes have been worked out for preventing some diseases of the stomach and intestines and hypoglycemia in piglets. Preventative measures for the MMA syndrome (mastitis, metritis, agalactia) are being introduced into the work practices of hogbreeding complexes. Laboratory analyses of feeds and biochemical studies of the blood are made to help evaluate the physiological condition of young used for breeding. On the basis of the results, vitamins, iron or zinc preparations and other macro- or microelements are added to the ration.

In order to be able to fill the herd and to replace rejected mothers at the necessary time, each complex has been assigned 1-2 breeding enterprises or farms. Pedigree reproducers for raising crossbred replacement piglets have been developed in the following hogbreeding complexes: Daynyay of Yurbarskiy Rayon, Byarzhay of Ionavskiy Rayon, Vingininkay of Shilal'skiy Rayon, Myarkis of Shal'chininskiy Rayon and Panevezhis in Panevezhskiy Rayon, as well as the complex in Rokay Kolkhoz of Kaunasskiy Rayon.

In 1976 complexes began the artificial insemination of hogs; last year artificial insemination encompassed 96 percent of the total herd of mother hogs in the republic.

In some complexes summer camps have been built for hogs of the reproduction herd. This helps to obtain additional products and to carry out renovations, ongoing repairs and sanitation work in regular facilities.

Link and brigade contracts are widely used in order to accelerate the fulfillment of plan goals, to increase the role of labor collectives in the management of production, to efficiently use feed, electrical energy and water and to strengthen labor and technological discipline. By the end of the current year it is planned to change over the collectives of all complexes in the republic to this progressive form of labor organization.

Excellent work, living and rest conditions have been created for workers. Cafeterias, shower rooms and laundries have been equipped in complexes. Many specialists and operators live in well-laid-out settlements with stores, kindergartens-nurseries, houses of culture and points for personal services. All conditions have been created for managing private plots, for participating in sports and for participating in various circles engaging in artistic activities.

In 1983 on the average in all hogbreeding complexes of the republic the average daily weight gain during raising equalled 470 grams, and during fattening--573 grams. For 1 quintal of weight gain 5.3 quintals of feed units and 6 man-hours were expended. The average weight of one sold animal reached 114 kilograms. The state was sold 7,230 tons more pork in live weight than in 1982. The proportion of all products obtained from complexes comprised 24 percent of total live weight gain in hogs raised in the republic last year.

However, it should be said that we have problems that hinder branch development. In the republic there is an acute shortage of protein-vitamin raw material for producing mixed feed. Because of this, special mixed feeds

did not correspond to the specific conditions of our republic; for this reason in 1978 a commission was created to improve planning, building and operating of livestock-raising complexes. The proposals on eliminating shortcomings, as well as the progressive experience of similar complexes in union republics and foreign countries were made the basis of a whole series of changes. This helped to significantly improve conditions for the upkeep of animals and for the care of technological equipment. In addition to this, measures were taken enabling us to improve the use of accumulated liquid manure for fertilizing agricultural lands.

Extensive organizational work is being carried out with the goal of fully supplying hogbreeding complexes with feed.

In most of these enterprises, during building there is inclusion of a technology for feeding with dry concentrates, the proportion of which comprises 95 percent in total feed expenditures.

In order to supply inter-farm hogbreeding complexes with mixed feeds on schedule and in the established assortment, they were attached to 12 combines producing grain products. Special mixed feed is produced according to quarterly plans, with each recipe being prepared twice a month, and is sent to hogbreeding complexes according to a prearranged schedule. All mixed feed is produced in granules having a diameter of 4.7 millimeters; most of it is delivered to its destination using centralized transport vehicles. Each quarter there is a meeting with representatives of the grain-products combines and of the hog-breeding complexes to deal with problems that arise relating to production, quality and delivery of mixed feeds.

In complexes various supplements are added to the rations of animals--feed lysine, defatted milk powder, whey, premixes, mineral feeds, grass meal, and where technology permits--grasses of legume crops, root crops, potatoes, mixed silage and so forth.

In hogbreeding enterprises an entire complex of veterinary counter-epizootic and medical-prophylactic measures is being implemented, which secures a steady well-being in animals in terms of communicable diseases. Each year there is planned diagnostic screening for brucellosis, tuberculosis, leptospirosis and helminthosis. Hogs are innoculated against erysipelas, plague, salmonella and leptospirosis. Newly arriving hogs are placed in quarantine, during which diagnostic studies and the necessary veterinary workups are made.

Care is taken to meet the requirements for the veterinary-sanitation condition of the facilities. The rules of "empty-occupied" are strictly adhered to. At the conclusion of every raising cycle mechanical cleaning and careful disinfection of the facilities are carried out (their quality is checked by a representative of the veterinary station).

Constant controls over the parameters of the microclimate enable us to uncover deviations from zoohygienic norms in time and to take measures to improve the cleaning, heating and ventilation of buildings.

which do not correspond to the requirements of OST [All-Union Standard] and to recipes and norms for individual component are produced. Rations are unbalanced with regard to irreplaceable amino acids because grain-products combines do not have the necessary laboratory equipment at their disposal and cannot carry out a full amino-acid analysis of feeds or determine the structure of the ration on the level that is demanded today.

In order to raise the quality of mixed feed it is necessary to introduce feed supplements into rations in complexes, which results in increases in expenditures of labor and resources.

In addition, in the summer of 1983 there were cases in which poorly-refrigerated mixed feed, which deteriorated rapidly during storage in storehouses, was delivered to hogbreeding complexes from grain combines. Combines pay little attention to the temperature of mixed feed that is produced because this indicator is not included in GOST [All-Union State Standard] and OST requirements.

Regular deliveries of raw materials to combines is not being achieved, and as a result of this there are frequent and abrupt alterations in the recipes of mixed feeds, and this has a negative effect on the health of hogs and on the intensity of fattening them.

Storehouses available in complexes are not equipped with the necessary aeration equipment; there are no contact thermometers--all of this makes it difficult to control the content of mixed feeds.

We would like the equipment manufactured by the plants of Minzhivmash [Ministry of equipment for livestock raising] and Minelektrotekhprom [Ministry of the Electrotechnical Industry and Energy Machine Building of the USSR] to have a higher operational dependability and level of standardization, which would decrease capital and other expenditures.

We feel that the solution of these problems will enable the republic's rapidly-maturing hogbreeding industry to take a step forward and to achieve new successes.



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# LABOR PRODUCTIVITY POTENTIAL IN UKRAINIAN AGRICULTURE EXAMINED

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/Article by A. Bugutskiy, doctor of economic sciences, professor and department head; I. Mikitenko, L. Goncharova and N. Kalinchik, candidates of economic sciences and senior scientific workers at the Ukrainian NIIEOSKh imeni A.G. Shlikhter: "Methods for Raising Labor Productivity in Agriculture in the Ukrainian SSR"/

/Text/ A reduction in expenditures for manual and low productivity labor and growth in labor productivity in agriculture -- these are two mutually associated social-economic problems, the solutions for which are dependent upon a complex of simultaneously active factors.

During the 11th Five-Year Plan and compared to the 10th, the state plan for the economic and social development of the Ukrainian SSR during the 1981-1985 period called for an increase of 12 percent in the average annual volume of agricultural production and for labor productivity at kolkhozes and sovkhozes to be raised by 24 percent. The plans call for the republic's Food Program to be carried out by means of intensive factors, while reducing the number of workers employed in this branch by an average of 9.7 percent. Thus further improvements in agriculture, which is the leading element of the APK /agroindustrial complex/, are dependent to a considerable degree upon the level of labor efficiency. An increase in its productivity in the republic's agrarian sector, where almost 60 percent of the workers in all branches of the APK is concentrated, is an important condition not only for increasing the production of agricultural products but also for successfully solving many economic and social problems in the rural areas.

However the average annual growth in the productivity of agricultural labor in the republic's public sector, as planned for the 11th Five-Year Plan, has still not been achieved. Compared to 1976-1980, the average annual level for labor productivity at kolkhozes, goskhozes /state farms/ and inter-farm enterprises during the 1981-1983 period increased by only 5.6 percent, compared to a planned growth of more than 13 percent. Meanwhile an increase of just 1 percent compared to the planned level, for the republic as a whole, will make it possible to increase considerably the production of goods and to reduce labor expenditures. According to estimates by specialists, the use of this reserve alone in 1984 will make it possible to increase gross agricultural output in the UkSSR by roughly 233 million rubles and to reduce the number of workers in this branch by more than 50,000.

Analysis reveals that the labor productivity level in agriculture is by no means the same in the republic's various natural-economic zones and that this derives from objective factors. Thus, in order to produce 100,000 rubles worth of gross output for example in the steppe zone, the labor of 22 workers is required, in the forest-steppe zone -- 30 and in the forest district -- 43 average annual workers.

At the same time, farms which operate under roughly the same production conditions also differ considerably in terms of the labor productivity level and the labor-intensiveness of output; the difference amounts to a factor of 5-7 and at times even to 10. This is conditioned by subjective factors, that is, by different levels of use of the achievements of scientific-technical progress and leading experience, administration and labor organization.

A large differentiation is noted in the labor productivity levels by categories of agricultural enterprises and their production branches. In 1983, for example, the republic's kolkhozes produced 3,900 rubles worth of gross output per average annual worker -- at goskhozes -- 5,400 and at inter-farm enterprises -- 8,400 rubles worth. On the average, for field crop husbandry kolkhozes and sovkhozes, 2.60 rubles worth of gross output is produced per man-hour and in animal husbandry -- 2.03 rubles worth. Such differences in the labor productivity levels among categories of farms and branches are caused by different levels of technical equipping and in production organization and specialization.

This year priority attention is being given to those problems concerned with the highly efficient use of the live labor resources available at the kolkhozes and sovkhozes, since the permanent work force on the republic's public farms is occupied rather fully (during 1983, one average annual worker worked 1,847 man-hours at kolkhozes and at the sovkhozes -- 1,904 man-hours, against a maximum possible level of annual expenditures for such labor for a 7-hour working day of 1,855-1,890 man-hours).

The extensive factors for increasing the productivity of agricultural labor have been exhausted and thus the intensive functioning of labor in the production process is a chief reserve for accelerating growth in its productivity and for reducing manual labor expenditures in agriculture.

Under the conditions imposed by scientific-technical progress, a process is taking place involving the replacement of functioning live agricultural labor by past materialized labor in the means of production and objects of labor, created mainly by industrial labor. The computations for revealing the trends in inter-branch displacement of labor, in the process of forming the total expenditures of live and materialized labor per unit of agricultural output, have shown that the replacement of live agricultural labor by materialized industrial labor occurred at kolkhozes and sovkhozes in the Ukrainian SSR during the 1965-1982 period. Moreover, each man-hour of materialized industrial labor invested in the production of 100 rubles worth of gross agricultural output replaced 5.8 man-hours of direct expenditures of live agricultural labor, including in field crop husbandry -- 7.6 and in animal husbandry -- 4.6 man-hours. Hence, only 0.17 man-hours of materialized industrial labor were required in order to replace 1 man-hour of direct

expenditures of live agricultural labor in the production of agricultural products, including 0.13 man-hours in the production of field crop husbandry products and 0.21 man-hours in the production of animal husbandry products and this promoted a reduction in the expenditures of manual labor.

If the quantitative values for the coefficients of replacement of live agricultural labor by materialized industrial labor are expressed by the difference in the payment for 1 man-hour in agriculture and the average for industry, then the economic effectiveness of such replacement becomes obvious. For example, in 1982 the average payment for 1 man-hour of agricultural production at kolkhozes and sovkhozes throughout the republic was 0.81 rubles and in industry (average for the country) -- approximately 1.30 rubles. Hence it follows that the savings in monetary resources from the replacement of just 1 man-hour of direct expenditures of live agricultural labor by materialized industrial labor in 1965-1982 amounted to 0.59 rubles /(0.81 rubles · 1 man-hour) - (1.3 rubles · 0.17 man-hours)/.

It is noted that an evaluation of 1 man-hour of materialized labor based upon its payment level is somewhat conditional in nature, since agriculture acquires equipment and other means of production of industrial origin according to wholesale prices. Thus such an evaluation includes the expenditures for making payment not only for the labor of industrial workers but also for the materialized labor expended during previous stages of production. Thus materialized labor in this instance must be taken into account based upon a public and national economic evaluation of it. Thus, if in 1982 29.2 man-hours were expended for the production of 100 rubles worth of gross industrial output, then the public national economic evaluation of 1 man-hour expended for the production of industrial output amounted to 3.42 rubles (100 rubles : 29.2 man-hours).

Computations have shown that in order to replace 1 man-hour of complete (direct and indirect) expenditures of live labor at kolkhozes and sovkhozes throughout the republic during the 1965-1982 period, taking into account the changes in the overall output volume and in the number of workers, it was necessary to invest 0.64 additional man-hours of materialized industrial labor, or 2.19 rubles (3.42 rubles · 0.64 man-hours). If one takes into account the fact that each average annual agricultural worker worked an annual average of 1,855-1,890 man-hours, then for the conditional release of one agricultural worker during the 1965-1982 period it would be necessary to invest 1,187.2-1,209.6 additional man-hours of materialized industrial labor, or 4,000-4,100 rubles.

Hence, in the carrying out of practical work, importance is attached to remaining aware of the interchangeability of the resources of live and materialized labor. For the future, this will require a determination of the capital investment volumes required not only for compensating for the manpower resulting from the increasing scales of production but also for solving the social problems of the rural areas, in the interest of retaining optimum numbers of skilled personnel here -- a very important factor with regard to reducing expenditures of manual labor.

At kolkhozes and sovkhozes in the Ukrainian SSR, the greatest proportion of all labor expenditures is consumed by the principal branches of production --

field crop husbandry and animal husbandry: in 1983, for example, these two branches accounted for 86.6 percent of such expenditures at kolkhozes and at sovkhozes -- 80.3 percent. However the proportion of labor expended in field crop husbandry over the past 7 years decreased (at kolkhozes from 43.3 percent in 1976 to 36.7 percent in 1983 and at sovkhozes from 43.3 to 38.5 percent) and in animal husbandry it increased (at kolkhozes -- from 46.2 to 49.9 percent and at sovkhozes -- from 41 to 41.8 percent). The differences in the dynamics of these expenditures for the mentioned branches and by farm categories were conditioned by the different levels of specialization for the latter.

One positive development was the fact that during the mentioned period an increase took place on farms throughout the republic in the proportion of labor invested in the development of subsidiary production efforts (from 4.1 to 5 percent at kolkhozes and from 6.5 to 8.2 percent at sovkhozes). This was associated with growth in the processing volumes for agricultural raw materials and in the production of construction and other materials. The development of animal husbandry and subsidiary production efforts at kolkhozes is promoting improvements in the use of labor resources, an increase in the employment of man-power in production and a decrease in the seasonal fluctuations in labor requirements. At sovkhozes, a greater amount of attention is being given to the carrying out of social and economic measures.

Labor expenditures among the branches of field crop husbandry and animal husbandry are distributed unevenly at the kolkhozes and sovkhozes. More than 54 percent of all labor expenditures in field crop husbandry are utilized for the production of the more labor-intensive crops -- vegetables, spinning flax, sugar beets, potatoes and food roots, which occupy almost 13 percent of the entire sowing area. The work being carried out in horticulture and viniculture continues to be of a labor-intensive nature. In the animal husbandry branch, the greatest proportion of labor expenditures (49.6 percent) is utilized for dairy cattle husbandry, for beef production -- 29.1 percent and for hog raising -- 11.1 percent. Owing to a low level of mechanization of production processes and deficiencies in the planning solutions for the construction of livestock farms and complexes, the norm for the servicing of animals by one worker remains low (for example, at kolkhoz farms for dairy cattle, 12 cows instead of 20-25 as called for in the plan).

A large proportion of the manual labor expenditures adversely affects the level of labor intensiveness for agricultural output. As can be seen in the Table, in 1983 and compared to 1976, the labor intensiveness for a majority of the principal types of agricultural products at kolkhozes and sovkhozes throughout the republic (with the exception of the meat of hogs at kolkhozes and grain at sovkhozes), computed according to the direct expenditures of live labor for their production, declined. At the same time, the indirect expenditures of labor for a majority of the types of products, especially at sovkhozes, increased. This led to a situation wherein the labor intensiveness for the production of a given product, computed taking into account the complete (direct and indirect) expenditures of live labor, increased.

Under conditions involving the conversion of agriculture over to mainly the intensive path of development, an acceleration in scientific-technical progress and more intense social division of labor, a judgement should not be made

Expenditures of Live Labor for the Production of 1 Quintal of a Principal Type of Agricultural Production in the Ukrainian SSR, in man-hours

| | Годы (1) | (2) Колхозы: полные затраты (3) | (4) в том числе: прямые (5) | косвенные (6) | (7) Совхозы: полные затраты (3) | (4) в том числе: прямые (5) | косвенные (6) |
|---|---|---|---|---|---|---|---|
| Зерно (без кукурузы) (8) | 1976 | 2,08 | 1,40 | 0,68 | 2,30 | 1,11 | 1,19 |
| | 1983 | 2,31 | 1,32 | 0,99 | 3,07 | 1,18 | 1,89 |
| Сахарная свекла (9) | 1976 | 1,67 | 1,18 | 0,49 | 1,36 | 0,93 | 0,43 |
| | 1983 | 1,23 | 0,84 | 0,39 | 1,37 | 0,76 | 0,61 |
| Картофель (10) | 1976 | 4,25 | 3,10 | 1,15 | 4,69 | 3,29 | 1,40 |
| | 1983 | 3,95 | 2,91 | 1,04 | 5,03 | 2,95 | 2,08 |
| Овощи открытого грунта (11) | 1976 | 10,94 | 8,02 | 2,92 | 6,08 | 4,62 | 1,46 |
| | 1983 | 9,00 | 7,54 | 1,46 | 6,64 | 4,61 | 2,03 |
| Молоко (12) | 1976 | 14,85 | 10,88 | 3,97 | 10,28 | 7,41 | 2,87 |
| | 1983 | 13,44 | 9,80 | 3,64 | 10,17 | 6,69 | 3,48 |
| Прирост живой массы (13) крупного скота (14) | 1976 | 91,99 | 65,42 | 26,57 | 57,13 | 39,50 | 17,63 |
| | 1983 | 76,23 | 54,61 | 21,62 | 56,88 | 35,60 | 21,28 |
| свиней (15) | 1976 | 64,17 | 45,07 | 19,10 | 33,92 | 19,77 | 14,15 |
| | 1983 | 66,51 | 45,00 | 21,31 | 35,00 | 18,26 | 16,74 |

Key:
1. Years
2. Kolkhozes
3. Complete expenditures
4. Including
5. Direct
6. Indirect
7. Sovkhozes
8. Grain (less corn)
9. Sugar beets
10. Potatoes
11. Outdoor vegetables
12. Milk
13. Increase in live weight:
14. Cattle
15. Hogs

concerning the effectiveness of agricultural labor based only upon direct expenditures of such labor; the indirect expenditures must also be taken into account. This is conditioned by the fact that, in connection with more complicated administration and an expansion in the scale of services being provided for the principal agricultural production effort, increases are taking place in the indirect expenditures of labor which often exceed the savings in direct labor expenditures, with an increase taking place in the proportion of indirect expenditures compared to the complete expenditures of live labor. For example, in the Ukrainian SSR their proportion of the complete expenditures of live labor for the production of all agricultural output increased at kolkhozes from 20.5 percent in 1965 to 35.3 percent in 1983 and at sovkhozes -- from 32.7 to 50.6 percent respectively. All of this underscores the need for more complete and accurate accounting for the expenditures of live labor.

At the present time, the annual reports of kolkhozes reflect the total amount of complete expenditures of live labor for the production of individual types of agricultural products and yet the labor intensiveness of this output is determined only on the basis of direct expenditures. The same holds true for sovkhozes, in the annual reports of which the indicators for the total amount of complete expenditures of live labor, by types of products, are generally lacking.

The indicators for specific labor intensiveness by types of agricultural products, computed only on the basis of direct expenditures of live labor, are

also being published in studies released by the USSR TsSU /Central Statistical Administration/ and the statistical administrations of union republics. Such a method for computing labor intensiveness was acceptable to a certain degree when manual labor predominated in agricultural production. Under the conditions imposed by scientific-technical progress, the indicators for labor intensiveness, which reflect only the direct expenditures of labor and do not take into account the indirect expenditures, lower its actual level.

Moreover, an accleration in scientific-technical progress, the conversion of agriculture over to an industrial basis and an expansion and intensification of its inter-branch relationships, raise the need for employing indicators for total labor expenditures in the planning and economic computations, that is, national economic labor intensiveness computed taking into account not only the complete expenditures of live labor (direct and indirect) but also past labor, materialized in the means of production and objects of labor of both industrial and agricultural origin.

During the 1976-1982 period, as a result of growth in the level of mechanization and improvements in the technology and in the organization of production and labor, the productivity of the latter for agricultural production as a whole increased at kolkhozes throughout the republic by 23.8 and at sovkhozes -- by 17.7 percent. The reduction in the yield levels for agricultural crops, which was associated with the extremely unfavorable weather conditions experienced over the past few years and the livestock productivity in this same regard, exerted an adverse effect on the level of labor productivity: under the influence of this factor, it decreased at kolkhozes by 11.4 and at sovkhozes -- by 6.7 percent. As a result, the action of both groups of labor productivity factors at kolkhozes was raised by only 9.7 and at sovkhozes -- by 9.8 percent. These figures indicate that the positive effect of the technical and organizational factors on growth in labor productivity was levelled off by the adverse effect of a reduction during these years in the agricultural crop yields and livestock productivity; however, it prevailed in the final analysis.

It bears mentioning that the first group of factors (technical and organizational) exerted a greater influence in field crop husbandry than in animal husbandry and greater at kolkhozes than at sovkhozes. Thus, at kolkhozes during the period under review, labor productivity in field crop husbandry increased by 40.7 percent as a result of these factors and at sovkhozes -- by only 19.6 percent. Under the influence of the second group of factors (reductions in the agricultural crop yields), the labor productivity level decreased here: at kolkhozes to a greater degree -- by 16.7 percent and at sovkhozes to a lesser degree -- by 7.9 percent. The overall effect of both groups of factors on labor productivity in field crop husbandry was expressed in an increase of 18.2 percent in its level at kolkhozes and at sovkhozes -- of 10.2 percent.

For the republic's animal husbandry branch, the effect of technical and organizational factors during the 1976-1982 period was less at kolkhozes than at sovkhozes: it was conditioned by an increase in labor productivity at them of 12 and 16.1 percent respectively. The reduction in the productivity of the animals brought about a reduction in the labor productivity level: at kolkhozes -- of 7.3 percent and at sovkhozes -- of 5.8 percent, as a result of

which the average labor productivity level in this branch at kolkhozes throughout the republic increased by only 3.8 percent and at sovkhozes -- by 9.4 percent, or 14.4 and 0.8 points lower respectively than in field crop husbandry.

Despite the fact that the achievements of scientific-technical progress are being introduced into the national economy in an intensive manner, the expenditures for manual labor constitute a rather large proportion of all labor expenditures both in industry (40 percent) and especially in agriculture (more than 70 percent. Thus a reduction in the expenditures of manual agricultural labor, under conditions involving constant reductions in the number of workers in this branch, constitutes a very important social and economic problem. A summary of data on the normative network of the UkSSR MSKh /Ministry of Agriculture/, with regard to a passport system for expenditures of mechanized and manual labor, carried out in 1980 using the method of the sector for labor normatives of the Ukrainian NIIEOSKh imeni A.G. Shlikhter, revealed that the proportion of manual labor compared to the overall labor expenditures at sovkhozes amounted to 73 percent and at kolkhozes -- 74 percent, including in field crop husbandry -- 74 and 70 percent respectively and in animal husbandry -- 72 and 74 percent, with the proportion being even greater for the production of labor-intensive types of products: outdoor vegetable production -- 90 percent, greenhouse vegetable production -- 97, flax production -- 89, beet production -- 80, potato production -- 78, horticulture -- 88 and food root production -- 86 percent.

Groupings of manual labor expenditures according to technological processes made it possible to establish the fact that their main proportion was consumed for harvesting operations and for improving the crops grown to the required condition from the standpoint of quality. In particular, for the harvesting of corn and the post-harvest processing of its grain 48 percent was expended, potatoes -- 60, vegetables -- from 35 to 65 (depending upon the crop), food roots -- 60 percent, for tending the sugar beet and sunflower sowings -- 61 and 66 percent respectively of all of the manual labor expenditures required for the production of these types of products.

In animal husbandry, the greatest amounts of manual labor are expended for the distribution of feed at cattle farms -- 82 percent, in hog raising -- 74, in sheep raising -- 80 and in poultry production -- 34 percent of all manual labor expenditures for these production processes. In the case of loading and unloading operations, manual labor constitutes 53-67 percent and for the preparation of feed -- 34-52 percent of all labor expenditures.

For the animal husbandry branch, the proportion of manual labor expenditures compared to all labor expenditures at kolkhozes ranges from 70.8 percent in hog raising to 89.7 percent in sheep raising and at sovkhozes -- from 68 percent in poultry production to 78.9 percent in sheep raising.

The principal reasons for the large expenditures of manual labor in agriculture -- the low levels of all-round mechanization for the production processes and labor organization. This involves the failure to supply this branch with sufficient mechanization equipment and this is restraining the process of compensating for the large amount of man-power which is withdrawing from agricultural production and bringing about an increase in the volumes of work

to be carried out by the remaining portion. Many farms, owing to this fact, are often unable to carry out their entire volume of work within the optimum agro-zootechnical periods and this results in a reduction in quality and an increase in the losses in agricultural products.

The data of scientific works and the experience of leading farms indicate that the republic will possess the potential, during the years of the 11th and 12th five-year plans, for reducing manual labor considerably in the production of field crop husbandry and animal husbandry products and raising the proportion of mechanized labor expenditures, compared to all labor expenditures, in the cultivation of agricultural crops depending upon the yields: grain crops (less corn) -- to 81-84 percent, corn for grain -- to 55-58, sunflowers -- to 58-61, sugar beets -- to 33-35, potatoes -- to 40-42, outdoor vegetables -- to 20-24 and food roots -- to 25-28 percent and so forth. A real possibility in animal husbandry operations is that of raising the proportion of mechanized labor to 40-50 percent of all labor expenditures, with a considerable reduction taking place in manual labor for loading and unloading work and for the servicing of livestock and poultry.

At the present time, additional attention is being given to the problem of raising labor productivity and achieving a sharp reduction in manual labor expenditures in agriculture. Importance is being attached to reaching a turning point with regard to overcoming inertia in the solving of problems associated with reducing manual labor and particularly labor-intensive processes in the labor-intensive branches of agricultural production.

Under modern conditions, the intensification of agricultural production, its technical re-equipping and the introduction of labor-conserving technologies are considered to be decisive factors for reducing manual labor and raising its productivity. Under the influence of these factors, 60-65 percent of the entire increase in labor productivity is achieved and the remaining 35-40 percent -- achieved as a result of the carrying out of organizational-economic and social measures.

In recent years the power-worker and capital-labor ratios have been raised considerably and yet their levels have still not reached the normatives. Thus, on the average for kolkhozes, sovkhozes and inter-farm enterprises in the UkSSR, the power availability per 100 hectares of sowing area is 75-78 percent of the normative (450-470 horsepower according to computations by specialists). For 1 hectare of agricultural land, there is slightly more than 1,000 rubles worth of fixed productive capital of an agricultural nature, whereas for the optimum functioning of production and depending upon its conditions, 1,600-1,800 rubles worth are required according to computations of the fixed capital sector of the Ukrainian NIIEOSKh imeni A.G. Shlikhter; there are more than 15,500 rubles worth per average annual worker in industry and in agriculture -- 10,500 rubles worth.

Experience indicates that the productivity of agricultural labor can be raised sharply and manual labor expenditures reduced only if modern equipment and progressive technologies are introduced into operations based upon the mechanization and electrification of production processes. At the same time, of the total amount of electric power consumed by the national economy in 1982,

agriculture used 11.3 percent of it and industry -- 59.4 percent; this was conditioned by different levels for the power-worker ratio in these branches: there were approximately 3,000 and more than 27,000 kilowatt-hours respectively in them per average annual worker. Each 250 kilowatt-hours of power used in production during the course of a year was equivalent to a savings amounting to the work performed by one worker.

The use of chemical processes in farming is an important reserve not only for raising (by 50-60 percent) the agricultural crop yields but also for lowering (up to 40 percent) the expenditures of live labor per unit of product produced. Over the past 18 years, the mineral fertilizer deliveries for Ukrainian agriculture (in a conversion for 100 percent nutrients) increased by a factor of 3.2. Despite this fact however, the fertilizer requirements are still not being satisfied fully, their concentration is inadequate and the application norms are low.

The principal directions to be followed for raising livestock productivity and labor productivity in animal husbandry -- creating a strong feed base, raising the nutritional value of the feed, ensuring effective feed utilization and improving the pedigree qualities of the animals. Meanwhile, on the average for the republic's kolkhozes and sovkhozes, slightly more than 2,700 feed units of feed are being consumed per conventional head of cattle compared to a minimal norm of 3,500 feed units and the digestible protein content in the feed per feed unit amounts to an average of 85 grams instead of the required 105-110 grams. All of this is adversely affecting the productivity of the livestock and labor expenditures. The productive potential of the animals is being utilized to only 70-75 percent. It is for this reason that the republic's public sector is annually sustaining a shortfall in animal husbandry products valued at 2.5-3 billion rubles. In addition to increasing the production and procurement of feed, the correct storage of the feed must also be ensured. The structure of the ration being fed to the animals and the introduction of new components into it must be biologically and economically sound.

A decisive condition for reducing manual labor expenditures and raising labor productivity is that of introducing industrial technologies into operations in both field crop husbandry and animal husbandry. The use of such technologies is making it possible, based upon intensification and the highly efficient use of all types of production resources, to achieve a considerable increase in the volumes of agricultural output, to reduce manual labor expenditures sharply and to facilitate and improve the conditions for the use of such labor. In 1983, almost all of the agricultural crops in the republic were grown in accordance with industrial technologies on an area of approximately 3 million hectares. This made it possible to realize a labor savings in agriculture equivalent to the work of more than 19,400 average annual workers and to obtain more than 32.3 million rubles worth of additional profit as a result of growth in the production and sale of products based upon improved labor productivity.

Many kolkhozes and sovkhozes in the republic are growing labor-intensive agricultural crops using industrial technologies and with a high level of economic effectiveness. For example, in 1983 the Ukraina Kolkhoz in Krynychanskiy Rayon in Denpropetrovsk Oblast grew corn on an area of 490 hectares using an industrial technology. Roughly 70.4 quintals of grain corn

were obtained from each hectare, with 0.22 man-hours of labor and 3.45 rubles worth of material-monetary resources being expended per quintal of product. During this same year, the Progress Kolkhoz in Zhashkovskiy Rayon in Cherkassy Oblast grew sugar beets on an area of 335 hectares using an industrial technology. The yield in roots amounted to 548 quintals per hectare and the expenditures of labor and material-monetary resources per quintal of product -- 0.15 man-hours and 1.36 rubles respectively.

The highest economic effect from the introduction of industrial technologies is being achieved in connection with the cultivation of labor-intensive crops, especially vegetable crops. For example, on the average for sovkhozes of Minplodoovoshchkhoz /Ministry of the Fruit and Vegetable Industry/ of the Ukrainian SSR, the cultivation of tomatoes during 1983 using the conventional technology produced a yield for this crop of 158.2 quintals per hectare, with labor expenditures per quintal of product of 5.5 man-hours and a production cost per quintal of product of 12.27 rubles and when use was made of the industrial technology the figures were respectively 233.3 quintals per hectare, 3.24 man-hours and 9.35 rubles; in the cultivation of cabbage using these technologies, the indicators in the first instance were 240.1 quintals per hectare, 2.50 man-hours and 6.60 rubles and in the second -- 300.1 quintals per hectare, 1.64 man-hours and 4.98 rubles.

In order to achieve high operational results in animal husbandry, both at complexes and at modernized farms, it is not enough to merely employ the latest items of equipment or individual and separate elements of a progressive technology. This requires the introduction of an entire system of elements for the most progressive technology for producing milk or milk or for reproduction of a herd. In dairy cattle husbandry, for example, its advantages compared to the traditional technology (wherein all production operations are performed by a milkmaid) consist of a further division of labor and operator specialization for certain technological operations. At the beginning of this year, this technology was introduced into operations at 30 percent of the farms -- where 44 percent of the republic's cows are being maintained.

One feature of the above flow-line departmental technology for milk production -- regime and shift feeding for the animals in a special facility ("dining hall"). This is a very important element since, in the opinion of the specialists, it makes it possible to introduce the loose housing system for cow maintenance into operations on any farm. The mentioned technology is being employed most extensively in Volyn, Ivano-Frankovsk, Chernovtsy and Vinnitsa oblasts, where it has been introduced into operations at 67-100 percent of the farms.

The technology for raising and fattening young cattle stock using internally produced feed, developed taking into account the age and physiology of the animals, the feed requirements and the maintenance conditions, appears to be especially promising. When raising calves using this technology, commencing when they are 15-20 days old, the live weight of one animal must reach 400-450 kilograms by the time it is 400 days old. This technology is being employed at more than 300 spetskhozes /specialized farms/, where 915,500 head of cattle or 3.5 percent of the republic's overall number are being maintained.

The conversion of cattle over to the loose housing system of maintenance (where the size of the farms and the cattle productivity are the same and there is a high level of mechanization for the principal labor-intensive processes) is promoting an increase of 45-55 percent in the labor productivity of farm workers compared to the productivity realized during stanchion maintenance on conventional floors.

In 1982 the flow line-departmental technology for pork production was employed on the farms and complexes of kolkhozes, sovkhozes and inter-farm enterprises, where 50 percent of all of the republic's hogs were being maintained. Sixty four percent of the gross volume of pork was produced using this technology.

Despite the comparatively high effectiveness of use of industrial technologies, they nevertheless are being introduced into production operations very slowly. There are several reasons for this. One such reason -- mainly the absence of complete logistical support for the farms with regard to the introduction of the industrial technologies (mechanization equipment, herbicides and toxic chemicals, seed, facilities equipped for the maintenance of livestock and the storage of feed and so forth).

The introduction of industrial technologies also involves a certain amount of risk. Thus it happens that not all of the farm specialists or leaders are willing to display initiative and accept responsibility for an endeavor for which there is no guarantee of success. Primary accounting procedures, which ensure a sound economic effectiveness for the industrial technologies, are not being employed at the kolkhozes and sovkhozes, the personnel are receiving only weak training and imperfections in the forms for issuing material incentives often lead to adverse results.

The introduction of progressive technologies into animal husbandry operations is being delayed mainly by an inadequate supply of high quality feed for the animals and the existence of a large number of small farms. The fact that the agricultural enterprises are not being supplied with sufficient numbers of highly productive machines and items of equipment is inhibiting farm modernization and, it follows, the introduction of industrial technologies into use. All of these adverse factors are resulting in forced deviations in the use of progressive technologies and this in turn brings about additional expenditures of manual labor.

An intensification in the social division of labor is a result of and at the same time an important condition for technical progress. At inter-farm enterprises and associations and at specialized kolkhozes and sovkhozes throughout the republic, the productivity of livestock was on the average higher than at multiple-branch farms during 3 years of the 11th Five-Year Plan, feed was consumed in a more economic manner and less labor was expended per unit of output, as a result of which the production cost was 23-28 percent lower. This underscores the need for completing the program for achieving efficient specialization.

In reducing manual labor expenditures and raising labor productivity, an important role is played by organizational-economic factors, particularly the efficient organization of production and labor, the effective use of working

time and fulfillment of the output norms. Time-study observations have established the fact that, depending upon the nature of the work being carried out, losses in working time during both mechanized and manual operations constitute from 5 to 30 percent of the shift time. Hence this explains the frequent non-fulfillment of output norms.

Efficient labor organization and material incentives based upon final results -- these are the chief components for raising labor productivity (by 15-20 percent), assuming that they conform to the requirements for scientific-technical progress. It is presently recognized that the problems concerned with labor organization, production and the material interest of workers can be mutually coordinated in an effective manner using the collective form for wages with periodic advances, that is, based upon a collective contract. A summary of the experience of kolkhozes and sovkhozes in the Ukraine reveals that labor productivity in production subunits which now operate on a collective contract basis is 15-25 and at times 30-40 percent higher than in brigades (teams) which operate on the basis of periodic output norms and wages for the volume of work carried out. In the case of a collective contract, all members of a production subunit are interested in the highly efficient use of equipment and this promotes a reduction in manual labor expenditures and an increase in labor productivity.

Importance is being attached to improving the existing incentive system at kolkhozes and sovkhozes (various types of additional payments, bonuses and so forth), in conformity with intra-farm accounting and the collective contract. Studies carried out by the Sector for Cost Accounting Relationships at Enterprises and Associations of the Ukrainian NIIEOSKh imeni A.G. Shlikhter reveal that the development of cost accounting procedures and the contract in the lower subunits of farms can produce the desired effect in those instances where simultaneous improvements are realized in cost accounting relationships at the subunit, enterprise and branch levels and also in the administrative sphere as a whole. Under modern conditions, there cannot be just one model for intra-farm accounting and the collective contract. The principles of cost accounting must be observed in all areas and the forms for cost accounting and the contract and their economic mechanism must be determined by the production conditions. Proper social-economic conditions promote the retention of a work capability in the people, a reduction in manual labor expenditures and, it follows, an increase in the labor productivity level.



7026
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## EFFECT OF PURCHASE PRICE MARKUPS IN RSFSR OBLASTS

Moscow SEL'SKAYA ZHIZN' in Russian 23 Sep 84 p 2

/Article by A. Zyuzin, head of a sector of the USSR People's Control Committee: "Not Everything Is Dependent Upon the Markups"/

/Text/ As is known, the state has allocated considerable resources for strengthening the economies of low profitability and unprofitable farms, having established purchase price markups in their behalf. This measure must promote the further development of agricultural production and improve the work of collectives which have fallen behind. The USSR People's Control Committee carried out a check on the effectiveness of use of the resources made available in a number of oblasts in the Russian Federation and it uncovered some serious shortcomings.

The results of the check have been discussed in the various areas, within the RSFSR Ministry of Agriculture and also during a meeting of the Committee on Problems of the Agroindustrial Complex of the Presidium of the RSFSR Council of Ministers. However, as explained by the people's controllers, by no means have all of the measures been undertaken aimed at eliminating the shortcomings in the distribution and use of the resources allocated by the state for use in the various areas. Moreover, these shortcomings have appeared in places other than the oblasts checked.

In Tambov, Kaluga, Smolensk, Belgorod and Pskov oblasts and also in the Mari ASSR, the price markups are being employed successfully in many instances for eliminating the backwardness of farms. The agroindustrial associations and agricultural organs in these areas did not employ a formal approach when developing and carrying out the organizational-technical measures aimed at lowering production costs and raising production efficiency at each low profitability or unprofitable farm.

Unfortunately, this non-formal approach has still not become the norm and, as a result, by no means are the purchase price markups producing the desired effect in all areas. The check revealed that many farms did not improve their production or economic indicators last year and that they continued to operate

on an unprofitable basis even following the introduction of the markups. One of the principal reasons for this -- the parasitical stand taken by their leaders and specialists. Having been granted certain privileges, they began to devote less rather than more attention to production, believing that the markups alone will raise their farms to the level of leading ones. And the agricultural organs did not require them to reorganize their work.

Of 89 kolkhozes and sovkhozes which were checked in Belgorod, Kaluga, Pskov and Smolensk oblasts, 72 did not obtain their planned grain yields and 69 farms -- their planned potato yields. The milk yields and livestock weight increases at 47 farms were lower than the figures planned, the production costs for milk and meat at 70 farms exceeded the planned levels to a considerable degree and almost one half of them did not obtain the profit expected. Compared to 1982, labor productivity at 24 kolkhozes and sovkhozes even decreased. Similar facts were uncovered by patrol scouts in the Mari ASSR and in Tambov Oblast.

At many of the low profitability and unprofitable kolkhozes and sovkhozes, the organizational-technical measures for normalizing the economies were prepared in the absence of adequate justifications and computations. Not all of the indicators planned for these measures were reflected in the industrial and financial plans for 1983 and 1984. In Yartsevskiy Rayon in Smolensk Oblast, for example, the measures for five out of nine such farms contained mainly general appeals, while at the same time measures aimed at raising yields and the productivity of the livestock were not supported in terms of the necessary resources or specific actions. It was for this reason that the Kolkhoz imeni Lenin was unable to fulfill its plan for the production and procurements of grain, meat and milk. Of 176,000 rubles obtained as a result of markups, one third was used for covering losses. Similar situations have been observed on farms in a number of other oblasts.

In short, many of the low profitability and unprofitable farms that were checked failed to make full use of the favorable conditions that had been created for improving their economies and a considerable number of them earned profits not as a result of an increase in the production of goods or a decrease in expenditures but rather owing to the markups that had been added to the purchase prices. But for these bonuses, 1,050 of the 1,598 formerly unprofitable kolkhozes and sovkhozes which were checked would have remained unprofitable just as in the past. Unfortunately, the RSFSR Ministry of Agriculture has still not fully analyzed the status of affairs in this regard in many other oblasts, krays and autonomous republics. And interest should be displayed in the methods being employed by some farms for earning profits and also in the use being made of the markups for strengthening the economies.

It must be remembered that an increase in the purchase prices and the introduction of markups for them cannot of themselves fully solve the problem concerned with strengthening the economies of backward farms. Indeed, the favorable conditions that are created are in many instances nullified by mismanagement and large unproductive expenditures and losses. Last year, such expenditures and losses exceeded 150 million rubles on farms in Tambov Oblast. An overall loss of 15 million rubles was sustained as a result of livestock losses, with the fines levied against the guilty parties totaling only 141,000 rubles. The sale of low quality agricultural products here resulted in a loss

of approximately 13 million rubles. On farms in Smolensk Oblast the unproductive expenses and losses exceeded 102 million rubles. For comparison purposes, it can be said that this amount is greater than the total amount of bonuses obtained by the oblast's farms.

Quite often the local soviet and agricultural organs violate the system for the use of purchase price markups, according to which they must be established only for farms which operate under poor natural-economic conditions and which have a total profitability of less than 10 percent. A large number of economically strong kolkhozes and sovkhozes are included among the low profitability and unprofitable farms unjustifiably as a result of lowered earnings from the sale of products and inflated expenditures for producing them. For example, in Tambov Oblast the total amount of markups paid out to 21 kolkhozes and sovkhozes exceeded 5 million rubles, while at the same time the markups paid out to 33 farms were lowered by this same amount. The Yaroslavka Experimental-Production Farm of the oblast's agricultural experimental station had a total profitability of 17 percent. However, its leaders, with the connivance of the agricultural organs, deliberately lowered the earnings in the accounts which were presented, exaggerated the expenditures, lowered the production profitability in the accounting data and during 1983 they illegally obtained markups totaling 236,000 rubles. Similar incidents have been recorded in the Mari ASSR.

The check uncovered facts which showed how the soviet and agricultural organs assigned markups to the prices in amounts which made the profitability of unprofitable farms become considerably higher than that for farms having high production indicators but did not receive markups. For example, the profitability last year at the chronically unprofitable Rodina Kolkhoz in Moroshanskiy Rayon in Tambov Oblast was raised unjustifiably to 95.7 percent after obtaining markups in the amount of 793,000 rubles. At the same time, the neighboring Burevestnik Kolkhoz, one of the oblast's leading farms which operates under the same natural-economic conditions, had a profitability that was lower by almost twofold.

Certainly, one can readily understand the dissatisfaction expressed by the chairman of the Burevestnik Kolkhoz I.V. Shurenkov regarding this status of affairs. Indeed, his grain yield is twice as high as his neighbor's, his potato yield -- higher by a factor of four and his labor productivity is increasing while that of his neighbor is decreasing. At the Burevestnik Kolkhoz, they count each kopeck as the saying goes, whereas the chairman of the Rodina Kolkhoz A.I. Zatsepin, prior to our discussion, had no knowledge whatsoever as to the total amount of markups obtained.

Owing to a lack of control on the part of the soviet and agricultural organs, many kolkhozes and sovkhozes are directing only a negligible proportion of the income obtained from raised purchase prices and from the introduction of purchase price markups into the savings fund, which is the foundation for improving the economic indicators. The remaining income is being added to the consumption fund. In Pskov Oblast, for example, the consumption funds were increased by 35 million rubles. In the case of non-fulfillment of the output production plan, the oblast's farms over-expended their wage fund by 1.4 million rubles. At the Kolkhoz imeni XXII Parts"yezda in Sampurskiy Rayon in

Tambov Oblast, the average monthly wage as a result of markups increased from 135 to 159 rubles and labor productivity -- decreased by 6 percent. And there are many such examples. At the same time, the negligible contribution to the savings fund produced a situation wherein many kolkhozes and sovkhozes, just as in the past, remained without their own working capital.

The councils of agroindustrial associations and the agricultural organs must devote more attention to those kolkhozes and sovkhozes that have fallen behind. They must monitor the situation to ensure that the bonuses are "working" and they must evaluate the work of the farms not only from the standpoint of the production volumes but also taking into account the price at which they were achieved.

7026
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## TIMBER MINISTER, OFFICIALS PARTICIPATE IN INDUSTRY AKTIV

Moscow LESNAYA PROMYSHLENNOST' in Russian 25 Sep 84 pp 1, 2

[Article: "Utilizing Timber Resources Better"]

[Text] As we have already reported, on 21 September in Moscow there was an aktiv meeting of the workers of the USSR Ministry of the Timber, Pulp and Paper and Wood Processing Industry and of the branch trade union central committee.

Participating in the work of the aktiv were I. N. Dmitriyev, department director of the CPSU Central Committee, directors of a number of ministries and departments, responsible workers of the CPSU Central Committee, the USSR and RSFSR councils of ministers, USSR Gosplan, USSR Gossnab, the trade union central committee, the USSR State Committee on Science and Technology, the USSR Committee on People's Control, the central committees of communist parties of union republics, kray and oblast party committees, ministers of union republics, directors of associations, enterprises and scientific-research and design institutions, secretaries of party organizations, trade union activists and production leaders.

There was a discussion of the branch's tasks related to implementing the proposals of the CPSU Central Committee and USSR Council of Ministers on improving the use of raw timber resources as well as on measures to retain cadres within the timber industry.

A speech on this question was made by M. I. Busygin, USSR Minister of the Timber, Pulp and Paper and Wood Processing Industry.

Speaking at the aktiv session was V. I. Dolgikh, candidate-member of the Politburo of the CPSU Central Committee and secretary of the CPSU Central Committee.

The speaker noted that the problems of the timber industry, as one of the most important links of the national economic complex called upon to satisfy multi-faceted and ever-growing needs of the country's economy for raw timber and its

products, remain at the center of attention of the CPSU Central Committee and USSR Council of Ministers. Decisions of party congresses, subsequent plenums of its central committee and resolutions of the CPSU Central Committee and Soviet government on different aspects of branch work enabled us to do a great deal to intensify timber procurement and process timber, to mechanize and automate production processes and to accelerate the development of production of effective replacements for commercial wood.

At the same time, many problems remain unsolved, which, as noted in a resolution of the CPSU Central Committee and USSR Council of Ministers, have become a serious hindrance to the development of a number of branches within the national economy.

The documents which have been passed contain many principally-new resolutions and decisions that provide timber workers with bright prospects and with the instruments to achieve their goals. Thus, for example, the question of self-procurement has been discussed for many years. The party and government's resolution provides a clear answer to the question--by 1990 timber procurement must be concentrated in the hands of the USSR Ministry of the Timber, Pulp and Paper and Wood Processing Industry [Minlesbumprom] in those regions where the ministry is the main procurer.

Another important task has been set before the branch--to achieve a fuller use of the raw timber fund. When building new enterprises it is essential to utilize all timber that is cut. A strict order is being introduced for planning deliveries and for using deciduous timber on the basis of reexamining existing normative documents.

"We are obliged to constantly control this important work," emphasized the minister,"and to persistently and sequentially implement this control in all directions and at all levels. This applies to work on the development and implementation, together with USSR Gosleskhoz [State Timber Industry Association], of a program to organize complex enterprises and on introducing the experience of Ivano-Frankovsk timber procurers, which was approved by the CPSU Central Committee."

Also of great significance for timber industry workers is the decision on strengthening raw timber bases in enterprises where they have experienced a reduction in strength. There is great production and social significance in this--the possibility will arise to preserve not only the capacities but also the workers' collectives that have developed over many years and to rejuvenate forest settlements.

"I would especially like to single out," noted M. I. Busygin, "the principally new posing by the party and government of the problem of extending the service life of timber materials and goods made from them, of extensively introducing protective wood treatment and of including secondary forest resources in economic turnover on a national level. USSR Minlesbumprom has been determined to be the head ministry to deal with these questions. Everything will be concentrated in our hands, and we will not be able to pass the buck, as they say. We are being given great rights and we are obliged to use them in a statesmanly manner."

All of these and other proposals in resolutions of the CPSU Central Committee and the USSR Council of Ministers place a great responsibility on the ministry staff, on the central committee of our trade union and on republic and local economic and trade-union organs, and determine the sphere of our most important tasks. Complacency and indifference cannot be tolerated here.

The branch staff is setting itself the goal that all work in the central apparatus as well as locally will be directed at achieving stable operations in all enterprises, at improving production organization, at increasing productivity, at utilizing technology better and at creating good living-personal conditions for people.

The last problem is an especially important one. In dealing with it we must consider that beginning in 1986 the ministry will be allocated capital investments for housing construction on the assumption that each year no fewer than 0.6 square meters of housing per person will be put into operation. This means that the volume of this work will increase here by a factor of 1.5 and that we must prepare for this today.

The minister named several other problems that we must deal with without delay. This includes increasing water transport of timber, eliminating counter-shipments and long distance shipments on railroads, decreasing the shipment of unprocessed lumber, increasing the production of progressive types of products (slabs, plywood), utilizing waste paper better, producing industrial and fuel briquettes from wood waste products and bark, and developing technically-valid requirements and goals for machine builders who are called upon to satisfy the needs of the branch with regard to new equipment, spare parts and chemical means for protecting wood. The branch does have the reserves for doing this, as the exhibition, Lesdrevmash-84, showed.

"It is difficult to overestimate the significance of the resolution of the USSR Council of Ministers on questions related to securing cadres in the timber industry," emphasized the minister. "Now beginning in 1984 one-time rewards for length of service will be paid for all timber procurement enterprises, both in forest-rich and forest-poor areas. Moreover, whereas previously they were received only after 3 years of uninterrupted service, now trained workers, ITR [Engineering and technical personnel] and employees receive rewards for length of service already after the first year of work at a rate of up to 10 percent of annual pay rate (official taxes), and for other categories of workers--up to 5 percent."

Now the most important task is to carry out extensive organizational work and to bring the sense and the letter of the approved document to every worker of the collective.

Comrade Busygin made a multi-faceted analysis of the situation within the branch and the course of fulfillment of the state plan and socialist obligations.

"This is a responsible period because the foundation for 1985 is being created," he said, "and this is the final year of the five-year plan, the year to prepare

for the 27th party congress. This is why this period is significant not only in economic but in political terms as well."

The plan for 8 months has been fulfilled by the ministry in sales of net standard products, in the shipment of timber and in production of paper and pulp, sets of pieces for houses, packaging for fruits and vegetables, matches, plywood, and consumer goods, including furniture.

Growth in total production volume compared to last year's levels equalled 4.1 percent as compared with the 3.7 achieved in 1983. Product sales above the quota equalled 50 million rubles. The output of effective replacements for commercial lumber increased. There was an increase in paper and cooked pulp as a result of the technical reequipping of existing and building of new enterprises.

"However, in evaluating the ministry's operations during recent years," said the minister, "we must draw the correct, self-critical conclusions. Work to improve the structure and increase the output of products, to improve the technology for processing timber and to extend the length of service of timber materials is being done slowly here. Insufficient work is being done to process the wood of deciduous trees and larches. There are great unused waste products formed during timber procurement and wood processing. The branch does not fulfill its goals for many indicators."

Ministry operations require radical improvements, and all of our efforts must be directed at fulfilling plans on the assigned nomenclature. There is serious concern regarding the non-fulfillment of obligations according to a number of other important indicators, and above all of delivering timber and paper products to consumers according to contracts.

In order to fulfill the assortment plan it is essential to bring the strictest order to the efficient sawing-up of felled tree trunks that have been moved to lower storehouses, to splitting them on schedule and to shipping them to consumers.

Especially alarming is the non-fulfillment of obligations related to decreasing costs by 0.5 percent. During the first 6 months we were able to decrease them by only 0.33 percent, and in 8 months there has been no change for the better. A number of associations and enterprises even tolerated over-expenditures in cost. First and foremost this concerns Severolesoeksport [Northern Timber Export Association], Soyuztsellyuloz [All-Union Pulp Association] and the administration of Siblesstroy [Siberian Timber Building Association].

"The successful fulfillment of goals placed before the branch," noted M. I. Busygin, "depends to a large extent on the initiative and business-like manner of management cadres and specialists. At the April 1984 Plenum of the CPSU Central Committee the General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, Comrade K. U. Chernenko, noted that cadres are truly the golden treasure of the party and state. In work with them as nowhere else a precise, thought-out system is required."

Today we have working in our branches over 364,000 specialists with diplomas, including 119,000 persons with a higher education. At the same time the level of work with cadres, and especially in the timber procurement industry, still remains below modern needs. The number of directors, mechanics for forest points and masters, i.e. the direct organizers of production, is totally inadequate. At the same time, many specialists are joining the staffs of production associations and are thus more removed from timber felling. This large problem must be corrected.

The most important goal of the ministry is to create a stable labor collective. We are convinced of this from the experience of a whole series of timber procurement enterprises which rejected the services of seasonal workers. This includes the Un-Yuganskiy Timber Industry Enterprise of Tyumen'lesprom [Tyumen Timber Industry Association], the Pruptskiy Timber Industry Enterprise of Komilesprom [Komi Timber Industry Association], the Ponizovskiy Timber Industry Enterprise of Kostromalesprom [Kostroma Timber Industry Association], the Prikarpatles Association of the Ukrainian SSR Ministry of the Timber Industry and many others. Production commanders deal correctly with questions of labor organization in the course of the entire year and create good living-personal conditions for people. As a result, turnover decreases sharply.

"The creation of stable labor collectives," emphasized the speaker, "must be the main task for the ministry in 1985 as well as in the 12th Five-Year Plan. In doing this we must give special attention to recruiting young people and secondary school graduates for production and holding them there. This is why for us the professional orientation of youth is important. There are about 3,500 schools in places where timber enterprises operate, and each year they graduate over 170,000 students. There should be a daily and integral tie between timber industry enterprises and schools.

A large reserve for increasing production volume and for improving the quality of products is implementing strict measures to organize well-paced work in all enterprises. An analysis of the situation shows that during the first 10 days of every month 70-80 percent of the daily quota is shipped out, and during the last 10 days--110-120 percent and more. Work is not well-paced in many timber felling-wood processing, pulp and paper and furniture combines.

Demandingness of directors for the unconditional fulfillment of daily schedules starting with the first days of the month will be increased, as will demandingness related to the mandatory transition of timber roads to uninterrupted schedules. In places where the necessary attention is given to this question, roads operate at a well-paced rate throughout the week.

"We must deal in particular with reserves for the efficient splitting of wood," said Comrade Busygin. "The output of round timber is somewhat greater this year than last. However, actually it is 0.5 percent lower than that determined in the timber-felling fund. As a result of this there was an underdelivery of 700,000 cubic meters of timber. Examinations carried out in Komilesprom, Arkhangel'sklesprom [Arkhangelsk Timber Industry Association] and Dal'lesprom [Far East Timber Industry Association] revealed serious shortcomings in the use of raw timber. They must be corrected immediately. Changes for the better in this area must be more apparent."

Changes should be like those that occurred in transportation, where progress has been noted. Everyone has been notified of socialist competition for the worthy meeting of the 114th anniversary of V. I. Lenin's birth. A goal was established--to transport 106 million cubic meters of wood, or 50 percent of the annual plan, by 22 April. Timber procurers managed to complete this task.

The initiators of socialist competition of Irkutsklesprom [Irkutsk Timber Industry Association], Tyumen'lesprom, Sverdlesprom [Sverdlovsk Timber Industry Association] and many other associations successfully fulfilled their obligations.

The party and government evaluated the work of timber workers. Five hundred of the best of these were awarded orders and medals, and three were given the high title of Hero of Socialist Labor. These are Mikhail Ivanovich Al'shevskiy, director of the Un-Yuganskiy Timber Industry Enterprise of Tyumen'lesprom, Nikolay Stepanovich Astashkin, brigade leader of a timber procurement brigade in the Lobvinskiy Timber Combine of Sverdlesprom, and Grigoriy Fedorovich Ugryumov, brigade leader of the timber procurement brigade in the Tegrinskiy Timber Procurement Enterprise of Arkhangel'sklesprom.

In response to the high evaluation of their labor, leading collectives took on the obligation of fulfilling ahead of time the 9-month plan for transporting timber and achieved this, delivering about 161 million cubic meters to lower storehouses.

Now timber procurement workers are entering their most responsible period; preparations have begun for work under winter conditions. In the near future the selection of the timber felling fund, the building of roads and guard bars and the repair of the tractor and machine fleet will be completed.

The main task for September, October and November is to achieve the planned distribution of operating machines and mechanisms under any weather conditions. We are obliged to achieve the fulfillment of output norms and daily goals by every brigade, timber section and timber industry enterprise.

After an analysis of the situation in the main branch, the timber procurement minister also characterized the work of paper industry workers, timber sawing workers and furniture makers.

"This year the pulp and paper industry is operating with somewhat more stability and is dealing with the fulfillment of plans for the main indicators," he said. "But at the same time there are still many shortcomings and unused reserves. The main problem is unplanned idleness of equipment. It must be brought down to a minimum."

Today timber sawing workers are not working with stability. Despite the availability of necessary capacities, the plan is not being fulfilled. In 8 months the national economy was undersupplied by about 1.8 million cubic meters of lumber. Interruptions are continuing in September. This type of situation is intolerable. Personal responsibility of directors of all ranks for failed plans will be increased.

The situation has improved somewhat in the plywood industry, but only a little. As before, there is much idleness of equipment for various reasons. The main one is the unsatisfactory organization of labor and the low level of management of individual associations and enterprises. This refers above all to the Ust'-Izhorskiy Plywood Combine and the Zharkovskiy DOK [Woodworking Combine].

A great deal must also be done in the panel industry. Here it is essential to continue work to decrease the thickness of the board without decreasing the qualitative indicator. Ways must also be found to help several lagging enterprises.

We are satisfied with the stable successes of furniture makers. All they need are regular deliveries of all the necessities. This industry gives the ministry one-fourth of commercial products. Attention to it must be constant.

In the same way, constant controls over fuel and energy expenditures are necessary. As of 1 January 1985 the resolution of the USSR Council of Ministers, "On Strengthening Responsibility for the Inefficient Use of Material Resources," goes into effect. We must do everything possible to bring the necessary order to this important matter.

"In addition to disseminating the work experience of timber organizations in Ivano-Frankovsk Oblast," emphasized the minister, "in our opinion it is essential to introduce an organizational structure that has proven itself well for managing the timber industry in the Belorussian SSR. Here complex production associations, which include wood-processing and timber procurement enterprises, have been created. Here is the result--the level of multi-faceted use of wood increased to 87 percent. Capital investments are being concentrated, fixed capital is being directed at operational objects, capacities have increased significantly as a result of renovation and technical reequipping, small building sections have been eliminated and repair-building services have been created."

Then Comrade Busygin discussed the situation in capital building.

"We must assimilate almost 830 million rubles of state capital investments for building-installation operations," he said. "Nevertheless, the pace here cannot but alarm us. This is especially true of planned building structures."

The main burden for fulfilling capital building work falls on the remaining period of the year. In order to put all planned objects into operation it is important, without losing days or hours, to achieve a high level of organization and to improve contacts with neighbors. Time does not wait."

"In evaluating measures to implement the resolutions of the CPSU Central Committee and the USSR Council of Ministers on the fundamental questions of improving operations of the timber industry, branch workers note the great attention focused on our branch by the CPSU Central Committee and the Soviet government," said Comrade Busygin in his conclusion. "In response to the home-land's concern we pledge to continue to devote our efforts and energy to the unconditional fulfillment of production goals and to the delivery of all necessary products to the national economy."

Taking on socialist obligations related to fulfilling intensive plans, fulfilling them, and marking the opening of the party congress with new labor successes--these will be the tests of the maturity of all workers of the timber, pulp and paper and wood processing industry.

Participating in debates were Hero of Socialist Labor A. I. Pogodin, general director of the Cherepovetsles Association of Vologdalesprom [Vologda Timber Industry Association]; P. P. Durdinets, deputy minister of the timber and wood processing industry of the Ukrainian SSR; V. Ye. Malykhin, director of the Bisertskiy Experimental Timber Industry Enterprise of Sverdlesprom; Hero of Socialist Labor P. I. D'yakon, brigade leader of the timber procurement brigade of the Mayskiy Timber Procurement Enterprise of Kirovlesprom [Kirov Timber Industry Association] and recipient of the USSR State Prize; Yu. A. Gus'kov, secretary of the Arkhangelsk Oblast CPSU Committee; G. A. Minin, senior engineer of the all-union association Tyumen'lesprom; V. N. Semenov, general director of the Ust'-Ilimskiy LPK [Lumber Industry Complex]; V. P. Nemtsov, director of the TsNIIME [Central Scientific Research Institute of Mechanization and Power Engineering in the Lumber Industry]; M. V. Kuleshov, chairman of the trade union central committee; and others.

The speakers focused primarily on analyzing the reasons for lags, on research into reserves for the efficient utilization of the timber fund, on the more complete assimilation of existing possibilities for expanding production, on improving the quality of timber products and the quality of their delivery to consumers, on increasing the effectiveness of economic activities of associations and enterprises, and on achieving their stable operation.

There was also an examination of problems related to accelerating the creation of permanent complex enterprises, to improving the technology for processing wood and its waste products, to sharp curtailments in losses of raw timber, and to improving the length of service of timber materials. The necessity was pointed out of further improving management methods, of accelerating the growth of labor productivity on the basis of production mechanization and automation, and of strengthening discipline and order in all sections.

M. V. Kuleshov, chairman of the trade union central committee, devoted his speech to questions of further improving the effectiveness of socialist competition, of disseminating the progressive experience of utilizing wood better, of using waste products in processing, of strictly observing delivery discipline, and of the struggle against losses of work time. He noted that in addition to economic work it is essential to focus the most intense attention on social questions--on the building of housing, cultural-personal and medical facilities. Active work must be carried out to retain cadres.

8228
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FORESTRY AND TIMBER

USSR TIMBER MINISTER EVALUATES 'LESDREVMASH-84'

Moscow LESNAYA PROMYSHLENNOST' in Russian 13 Oct 84 pp 1,3

/Interview with M.I. Busygin, USSR Minister of the Timber, Pulp and Paper and Wood Processing Industry and chairman of the Organizational Committee for the 'Lesdrevmash-84' Exhibit; date and place not specified/

/Text/ /Question/ Mikhail Ivanovich, what was the reason for this type of exhibit being held?

/Answer/ First of all, there is the fact that an increase is taking place throughout the world in the production and consumption of wood products, with wood being one of the most important types of raw materials just as in the past. Although the supplies of coal, petroleum, gas and ore are limited, the forests, owing to the fact that they can be restored, constitute a practically inexhaustible source of raw material. Growth in the volumes of timber procurement and forest restoration work is inevitable in the future. The exporting and importing of forestry products and also the machines and equipment required for the forestry complex also reveal a stable tendency towards increasing. In this regard, importance is attached to international exhibits, the exchanging of scientific information and demonstrations of new models of equipment.

/Question/ The present exhibit is the third one of its type. What trend can be traced from the first such review to the one most recently completed?

/Answer/ The 'Lesdrevmash-73' and Lesdrevmash-79 exhibits promoted the birth of new technical ideas and the development of scientific-technical progress and they defined and outlined more precisely the promising trends in the mechanization of processes in various spheres of the timber industry of the Soviet Union and other countries throughout the world. Many technical innovations demonstrated at those times have since received recognition on an extensive scale.

The 'Lesdrevmash-79' Exhibit proved to be very fruitful, since it revealed the three principal trends in the development of the modern timber, pulp and paper, and wood processing industry and forestry: all-round, maximum and thrifty use of wood raw materials, an increase in the level of mechanization and automation of all types of technological processes and improvements in the quality of the marketable products.

The present exhibit has shown that these trends will be maintained for the most part through the immediate future. At the same time, the 'Lesdrevmash-84' Exhibit has enabled us to obtain a clear appreciation of the trends which exist during a given period with regard to the use of systematic approach in the mechanization and automation of technological processes and the extensive use of digital program control in timber, paper-making and wood processing machine-building, based upon the use of microprocessor equipment, high quality plastics and special steels. The majority of the exhibits revealed a desire on the part of the designers and producers to reduce the maximum possible degree the material-intensiveness and specific energy-intensiveness of the machines and mechanisms.

/Question/ The Soviet exhibit at 'Lesdrevmash-84' aroused a tremendous amount of interest among the visitors and also among the specialists and representatives of foreign firms. In your opinion, what was the reason for this success?

/Answer/ It came about owing to the fact that we demonstrated not so much individual mechanisms but rather systems of machines for the carrying out of tree felling and timber transporting operations and for the primary working and processing of wood. The general introduction of such systems into operations will make it possible to eliminate heavy manual labor, raise productivity by a factor of 2-3 and practically eliminate injuries and professional diseases. The latter point is extremely important. Indeed, the motto of the exhibit that has just ended was: "Forestry Equipment -- For Man."

Machine systems represent the future for the timber industry. During the 'Lesdrevmash-84 Exhibit, we demonstrated systems consisting of felling-hauling and felling-baling machines, self-propelled tree trimming machines, jaw-type timber loaders and timber carrying motor vehicle trains with twin-axle log trailers. The specialists also assigned a high grade to the machine systems for the processing of round timber and the production of furniture panels, carpentry products and other items.

/Question/ Mikhail Ivanovich, what overall differences did you notice at the 'Lesdrevmash-84' Exhibit in the trends for the development of domestic and foreign forestry machine-building?

/Answer/ It bears mentioning that an analysis of domestic and foreign timber procurement operations and a comparison of the basic trends being followed in the development of scientific-technical progress in connection with the creation and development of new forestry equipment in our country and in developed timber industry countries reveal that on the whole we are employing the same means for mechanizing the heavy labor of the timber procurement workers and for achieving the most complete utilization of the wood raw materials. This means -- all round mechanization and automation of production and the introduction of waste-free technological processes.

Naturally however, there are certain differences. We are following our own path with regard to a number of trends in the development of the timber industry. Thus in some countries, for example in Canada and the U.S.A., a preference has been shown recently for cutting down trees using special blades. In line with tradition, we are developing this work along another line

-- the cutting down of trees using sawing equipment. We believe that this method is more justified, since it limits the converxion of the more valuable part of tree trunks into waste scraps.

There are also other differences. The prevailing timber procurement technology abroad, as revealed by the exhibit, continues to be assortment procurements of wood with the shipping of round timber materials from the tree felling areas to the consumption points by means of motor transport. We have other conditions, other scales and another technology. At the same time, I wish to note that recently some large timber procurement companies in the U.S.A., Canada and Sweden have started to use the Soviet technology for timber procurements, with the wood being shipped in tree length logs and in some instances in the form of entire trees.

In short, it is difficult to establish a clear pattern. Without going into technical details -- this is the subject of a separate discussion -- I will say only that in some ways we are inferior to the foreign firms and in some ways we surpass them. But in general our timber industry is developing in keeping with the chief trends in modern technical thought. The 'Lesdrevmash-84' Exhibit revealed that the existing inventory in the timber, pulp and paper, and wood processing industry of our country is making it possible to accelerate technical progress considerably in all of the sub-branches of the forestry complex. In order to further develop the domestic timber industry, it will be necessary to strengthen the base and raise the technical level of forestry machine-building. In particular, a great amount of work remains to be carried out in connection with reducing the material-intensiveness and energy-intensiveness of the forestry equipment.

/Question/ What can be said regarding the prospects for scientific-technical collaboration between the USSR and foreign countries?

/Answer/ The prospects are very promising. We possess rich experience in the development of mutually advantageous collaboration with many countries and particularly with CEMA member countries.

Specialization and cooperation in key situations concerned with the development of the forestry complex have enabled the CEMA member countries to reject having to solve a number of tasks on a national scale. Thus they have been able to concentrate their forces and resources on common and more urgent scientific problems, to reduce the schedules for the carrying out of work and to raise the effectiveness of studies.

This applies in particular to joint work concerned with the efficient and complete use of wood raw materials, the all-round mechanization of forestry operations and the creation and introduction into operations of new types of highly productive machine tools and machines for the timber, pulp and paper and wood processing industry. For example, the branch scientific centers of the NRB /People's Republic of Bulgaria/, PNR /People's Republic of Poland/, USSR and ChSSR /Czechoslovakian Socialist Republic/, have concentrated their efforts on developing multiple-unit sawmill equipment. We are carrying out timber procurement operations on the territory of the Komi ASSR jointly with the NRB. Moreover, in addition to forest exploitation work, the construction of timber procurement enterprises and forest restoration work are also being carried out.

Capitalist countries are also participating in the work of achieving solutions for a number of existing problems. For example, the Ust'-Ilimskiy Timber Industry Complex was erected by the USSR jointly with CEMA member countries and with the participation of a number of Finnish, Swedish and French firms.

Finnish firms furnished assistance in completing work on the construction of the third phase of the Svetogorsk Cellulose Plant and the Kondrovo TsBK /pulp and paper combine/ for the production of obstetric units on a paper basis was placed in operation.

Active business-like contacts between the USSR and the FRG are being organized in the pulp and paper industry, which encompasses a broad range of problems associated with the technology for the production and processing of cellulose, the creation of new types of paper and high quality wallpaper, the procurement of equipment and the "know-how" for producing synthetic screens for use in paper and cardboard making machines.

Within the operational framework of a Soviet-French working group, a number of problems are being examined concerned with the modernization of furniture shops and equipment for the production of corrugated cardboard used for packaging purposes. Scientific-technical collaboration is also being carried out in connection with the use of chemicals for the production of special types of paper, including adhevisive, rubber and friction tape and others. Many more such examples could be cited. The exhibit promoted the strengthening of mutually advantageous collaboration among the countries. At the exhibit's commercial center, Soviet foreign trade associations and organizations concluded many contracts with foreign firms and enterprises for the exporting and importing of equipment. It is still too early to summarize the final results. But it is clear that the Lesdrevmash-84 Exhibit has provided a new impulse to the work directed towards strengthening technical and economic contacts.

In discussing collaboration, my thinking is not limited to just trade agreements. Here are several figures. According to preliminary data, the exhibits on display were viewed by more than 150,000 persons, including 95,000 specialists. Large groups of specialists from a number of ministries and departments were dispatched on a temporary duty basis for the purpose of studying the exhibits. More than 100 lectures were delivered by Soviet and foreign scientists and specialists and they were attended by more than 4,000 individuals. Certainly, all of this has served to create a definite base for the further development of scientific-technical relationships between organizations in the USSR and a number of foreign firms.

We are interested in expanding and strengthening scientific-technical collaboration with all socialist countries. We are prepared to expand collaboration, especially in the area of timber procurements, with such developed capitalist countries as Finland, Canada, France and Sweden. I believe that an expansion in collaboration would be advantageous both for the Soviet Union and these other countries.

/Question/ Mikhail Ivanovich, we are aware that it is difficult to evaluate such a large and multiple-plan exhibit as 'Lesdrevmash-84'. And yet at the

conclusion of this discussion we would like you to cite what in your opinion is the chief and most distinctive feature of this exhibit and its principal lesson.

/Answer/ You are correct. It is difficult to describe such an exhibit in a simple manner. The specialists have a great amount of work to carry out in connection with examining and summarizing its results. Once again the 'Lesdrevmash-84' Exhibit has demonstrated the tremendous importance being attached to the problem of forest utilization in the life of man. On the one hand, this is conditioned by concern for protecting and restoring the forests -- one of the chief nature-forming factors of our planet's ecological system. And on the other hand, it is conditioned by constant growth in the role played by a forest as a unique source of raw material for satisfying the increasing requirements of various branches of the economy. The exhibit revealed that the use of these trends, which at first glance appear to be mutually exclusive, and the balanced use of both of the important functions of a forest are not only possible but in fact achievable. This then is the developmental path for the timber industry of the Soviet Union and this is the path that is pointed out to us in the recent decree of the CPSU Central Committee and the USSR Council of Ministers entitled "Improving the Utilization of Forestry Raw Material Resources."

And it is my opinion that the chief result of the 'Lesdrevmash-84' Exhibit is political in nature as well as technical and commercial. The 'Lesdrevmash-84' Exhibit, in which approximately 700 firms and organizations from 23 states participated, demonstrated a readiness on the part of the representatives of various countries to participate in mutually advantageous collaboration. It has promoted a strengthening of trust and it has proven to be of assistance in developing old and establishing new relationships between the representatives of states having different political systems. At the present time, with the world situation becoming dangerously aggravated through the fault of the capitalist circles, the 'Lesdrevmash-84' Exhibit represents still another contribution being made by our country in the interest of strengthening peace on earth. The campaign to achieve peace -- the main policy of our state. There will be peace -- there will be exhibits, exchanges of opinion and scientific and technical progress. This, in my opinion, was the chief result of the 'Lesdrevmash-84' Exhibit.

7026
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## OUTLOOK FOR USSR PAPER INDUSTRY DISCUSSED

Moscow LESNAYA PROMYSHLENNOST' in Russian 18 Oct 84 p 2

/Article by V. Alekhin, deputy chief of the Technical Administration for the USSR Ministry of the Timber, Pulp and Paper and Wood Processing Industry: "The Paper Industry: Forecast for Tomorrow"/

/Text/ Not one of the pavilions presented at Sokolniki or Krasnaya Presna, as part of the Lesdrevmasha-84 Exposition, includes a modern paper-making machine or a cooking unit equal in height to a multiple-story building. Models, photographs, slides, pamphlets and finally reports delivered during a symposium -- these then were the materials which were mainly used for acquainting those visitors to the exhibit who were interested in learning about the future of the paper industry. Nevertheless, these pebbles, just as on a mosaic panel, provide a rather clear picture of the future awaiting the paper industry workers.

The increase in the capability of cooking units and the development of high speeds for the pouring of paper, which we witnessed 10-15 years ago, were somehow pushed into the background. Emphasis is now being placed upon the creation of equipment and the development of technological processes which will make it possible to use wood raw materials more completely and more economically, utilize waste scraps, lower the specific norms for the expenditure of heat, electric power and chemicals, improve the quality of products, develop new types of products, reduce the metal-intensiveness of the equipment and raise the reliability of the equipment.

Here is one example. The new types of mixing units demonstrated during the exhibit make it possible to employ abbreviated programs for the bleaching of cellulose with the oxygen-alkali processing stage for the bulk. What does this do? First of all, the cost of the bleaching unit is 25-30 percent lower than that for existing ones. Secondly, the quality of the semi-finished goods is improved. Thirdly, the expenditures for electric power and heat are lowered by 20-25 percent. Finally, the release of harmful chlorine compounds is reduced by a factor of 1.5-2.

Still another example. The development of special pumps, new types of filters, displacement presses and sorters has promoted the creation of a basically new technology for processing cellulose, with an average concentration of bulk throughout the entire production line. And in this instance the economic

advantages are clearly apparent. The new technology requires fewer production facilities and storage capabilities and the equipment itself is more compact and less metal-intensive. Another advantage is the fact that it requires fewer expenditures of all types of energy, chemicals and water.

Our paper-making specialists are also interested in the models of presses for the pressing of bark and wood scraps, as demonstrated during the exhibit. Their use makes it possible to use the mentioned waste materials to better advantage. Compared to tubular units, considerably less steam is expended by evaporation units having a "falling" coating. In both instances we encounter a desire to realize a maximum savings.

Not long ago our ministry approved a program for developing, during the 12th Five-Year Plan, the production of TMM /termomekhanicheskaya massa; thermo-mechanical bulk/ and KhTMM /khimikotermomekhanicheskaya massa; chemical-thermo-mechanical bulk/ at a number of the branch's enterprises. The program was developed by Giprobum /State Institute for the Planning of Establishments of the Pulp, Paper and Hydrolysis Industries/. The correct nature of this line is confirmed by the overall trend reflected in the exhibits of Lesdrevmasha-84, which were presented by well known foreign firms.

Soviet paper industry specialists are already familiar with the thermo-mechanical bulk concept. The Syktyvkar LPK /Lumber Industry Complex/ Association was a pioneer in its development. Fine results were obtained. But chemical-thermo-mechanical bulk is even more promising. The technology for producing it differs from the TMM technology in the sense that the wood chips are subjected not only to the action of heat but also chemicals (soda products), which facilitate the milling process. In the process, the expenditure of electric power decreases and the quality of the bulk is improved.

But these are not the chief advantages of this new innovation. The chief one is as follows. For the production of chemical-thermo-mechanical bulk, use is made of a broader range of wood raw material types, particularly deciduous wood (including aspen) and also dead wood. The new type of semi-finished product makes it possible to produce newsprint practically without the use of cellulose. It is also suitable for the production of slaked lime for sanitary-hygienic products. There is still another factor that is of considerable importance: the production of thermo-mechanical bulk can easily be converted over to the production of KhTMM. It is only necessary to install additional equipment for saturating the chips.

Similar to any new technology, the production of chemical-thermo-mechanical bulk has its own particular problems. In particular: with what type of fitting should disk mills be used -- with two disks which rotate in different directions or with one disk (both types have their own advantages). Other problems include achieving a further reduction in electric power consumption for milling purposes, increasing the service life of the fittings and utilizing used solutions.

Nevertheless, the new semi-finished product has a future. And the task consists of ensuring that the program developed for the 12th Five-Year Plan for introducing the technology for chemical-thermo-mechanical and thermo-

mechanical bulk into operations is implemented in full volume and within the established time frame. This will make it possible to draw a considerable quantity of deciduous wood into paper production.

The foreign firms and Soviet exhibits presented innovations at Lesdrevmashe-84 which can be used for the modernization of existing paper and cardboard-making machines. Here we have in mind improving their shaping and forming parts in the interest of introducing a multiple-layer form, reducing the free flow of paper or cardboard material and lowering energy consumption. Some firms have proposed units which, when installed on flat-grid units, make it possible to convert over to a double-grid form.

New methods (and the appropriate equipment) for the surface processing of paper and cardboard have appeared in foreign practice which are making it possible to obtain high quality wallpaper, finishing and packaging materials and special types of products. With regard to the automation of pulp and paper production, the general trend seems to be the creation of an ASU /automatic control system/ based upon the use of micro-processor equipment and instruments for exercising continuous control over the parameters for the technological processes and the quality of the products.

It bears mentioning that the domestic instruments, multiple-unit metal-ceramic disks for the milling of bulk and the examples of inhibitor and condenser paper and semi-finished products exhibited during Lesdrevmashe-84 conform to the level of similar products being produced by foreign firms and in a number of instances even surpass them.

The exhibit, which served as a review of Soviet and foreign equipment used in the paper industry and new technologies and types of products, undoubtedly played a positive role. In addition to revealing the overall trends in the development of the pulp and paper industry throughout the world, it also made it possible to glance into the branch's future. In addition, it stimulated the work of the designers, technologists and planners in a definite direction and it promoted the establishment of closer contacts between the specialists of different countries. It served as still another example of international collaboration among countries having different social systems.

7026
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FORESTRY AND TIMBER

USSR STATE COMMITTEE FOR FORESTRY CHAIRMAN ON RESOURCE USE

Moscow LESNAYA PROMYSHLENNOST' in Russian 16 Oct 84 pp 1-2

/Article by A.I. Zverev, chairman of USSR State Committee for Forestry: "For Better Use of Forestry Resources"/

/Text/ The adoption of the decree of the CPSU Central Committee and the USSR Council of Ministers entitled "On Improving the Use of Forestry Resources" and the decrees of the USSR Council of Ministers "On Additional Measures for Raising the Effectiveness of Use of Wood and Its Waste Products in the National Economy" and on additional measures aimed at retaining personnel in the timber industry -- this was an important event in the life of workers attached to the timber industry and forestry generally and it provided clear evidence of the concern being evidenced by the party and government for supplying the national economy with timber materials and for improving the well-being of the forestry workers.

The attention and concern being shown by the party for accelerating the development of the branches of the timber complex are associated mainly with increasing the role being played by the forests in solving the all-state programs for economic and social development.

The managerial level for timber procurements and forestry generally is not in keeping with the increasing requirements for developing the productive forces of our economy. The country has large forestry raw material resources at its disposal, the development of which is often carried out in a wasteful manner.

A low concentration of timber procurement and sawmill production operations results in the existence of ineffective and uneconomic sectors and departments and in the inefficient use of the tree-felling fund. It is for this reason alone that 38 million cubic meters of soft deciduous wood are not being utilized in the European-Urals zone of the USSR. In addition, use is not being made of the waste products of timber procurement, sawmill and wood-working operations. The absence of all-round processing of wood raw materials and an inefficient production structure places a restraint on the accelerated development of progressive types of timber and paper products.

A definite lag is taking place in the technical re-equipping of forestry and the timber industry. On improvement cuttings for young stock, the level of mechanization does not exceed 31 percent, the proportion of tree fellings being

carried out by cutting and cutting-baling machines at forestry enterprises amounts to only 4 percent and the pruning of branches from trees using the mechanized method -- 26.6 percent. Only slowly are low waste product and waste-free technologies being introduced into forestry operations.

The decrees encompass questions concerned with improving the forestry and timber industry production operations, accelerating scientific-technical progress, raising the efficiency of forestry management and the branches of the timber industry complex and increasing their contribution towards developing the country's economy.

Towards this end, the plans call mainly for measures aimed at concentratin and regulating timber procurement operations. By 1990, in regions where the USSR Ministry of the Timber, Pulp and Paper and Wood Processing Industry is the principal timber procurement agency, the carrying out of procurement operations and the shipping of wood will be concentrated mainly at enterprises and organizations of this ministry. Accordingly, the organs of forestry must develop, coordinate with the local organs and present in 1985 recommendations for the transfer over to USSR Minlesbumprom /Ministry of the Timber, Pulp and Paper and Wood Processing Industry/, in the established manner, of the timber procurement enterprises, organizations, forestry stations and sectors.

Special attention is being given to the need for raising production efficiency, improving the quality of the products and achieving considerable improvements in the system for carrying out timber procurement and forestry operations. The need for efficiency in the carrying out of such measures is borne out by the experience of leading enterprises and particularly by the experience of the workers in Ivano-Frankovsk Oblast, approved by the CPSU Central Committee, with regard to the efficient use of local forestry raw material resources, experience which is finding more extensive use throughout forestry operations generally.

By processing wood raw materials to the maximum possible degree and by employing low-waste and waste-free technologies, the Kamskoye Order of the Red Banner of Labor lespromkhoz /timber industry farm/ in the Tatar ASSR, the Kadadinskiy Experimental Timber Combine in Penza Oblast, the Radekhov and Brody timber procurement farms in Lvov Oblast and enterprises in Voronezh, Rovno, Vladimir, Volyn, Minsk and other oblasts have become worthy perpetuators of the movement which has unfolded throughout the country aimed at obtaining a maximum amount of diverse products from each hectare of forest area and achieving a high culture for production operations in the forests.

This example of a state approach for the utilization of forest resources and zealous management is aimed at developing a path for socialist ontinuous and unending timber utilization which will produce the desired economic, ecological and social results and, most important, create conditions for the formation of permanent cadres of personnel. The efforts of all forestry workers must be directed towards the implementation of this economic and social strategy in matters concerned with forest utilization. It was precisely for this purpose that a recommendation was made for approving a program of work concerned with organizing, during the 1985-1990 period, permanently active all-round forestry enterprises responsible for the reproduction of forests and the procurements and complete processing of wood. The plans also called for the preparation of an appropriate statute dealing with such enterprises and a list

of the principal planning indicators for regulating the production-economic activities of these all-round enterprises and the efficiency of their operations.

Modern forestry and the exploitation of forests cannot proceed in the absence of proper consideration of the level of development of the country's productive forces and the natural climatic and social-economic factors. Yesterday we tolerated great losses in wood associated with timber procurements and processing operations, conditional clear fellings, the burning of waste scraps and the construction of log roads. Today these concepts are viewed by society as being alien to technical progress.

The all-round enterprises and the efficient utilization of forestry raw material resources in the European portion of the USSR and the assignment of forests to groups and categories according to the degree of protection required and the establishment of ages for forestry fellings -- these are all key problems of forest production and forest utilization. The branch's scientific research institutes and Lesproyekt, based upon leading domestic and foreign experience and with a high degree of responsibility involved, must develop scientifically sound recommendations.

Important measures for raising the efficiency of use of wood and waste scraps include the considerable increase planned for 1990, in conformity with the decree of the USSR Council of Ministers, in the production of chipboard and fibreboard panels, plywood and cardboard and the production of fuel and technological briquettes from wood waste scraps and bark. In the timber procurement areas, for the 1985-1990 period, the plans call for the construction and modernization of sawmill departments and departments for the production of parquet and chipboard panels and for the processing of deciduous strains of wood based upon the use of a waste-free technology. Within the system of the state committee, the plans call for the construction of four sawmill departments, with a capability for producing 20,000-40,000 cubic meters of sawn timber annually, in the forestry ministries for the RSFSR, the Belorussian SSR, the Ukrainian SSR and the Ministry of Forestry and Timber Industry of the Latvian SSR, three departments for the production of parquet in Minleskhoz /Ministry of Forestry/ for the RSFSR, one in the Ukrainian SSR, three departments for the production of chipboard panels with a capability for producing 30,000-60,000 cubic meters in RSFSR Minleskhoz and one in the Ministry of Forestry and Timber Industry of the Latvian SSR.

The production of technological chips from wood waste scraps for pulp and paper and hydrolytic production and for the production of chipboard panels will be increased by more than a factor of 1.5 by 1990. Commencing in 1986, the draft plans, simultaneously with the allocation of funds, will contain tasks for those ministries and departments having timber procurement and wood processing production efforts in connection with the gathering up, utilization and deliveries to consumers of high quality wood and waste scraps obtained from the processing of wood. In 1984, taking available experience into account, it will be necessary to develop a program for raising efficiency in the processing of low quality wood into nutrient yeasts, furfural and carbohydrate feed additives.

The decrees also call for measures aimed at ensuring a harmonious and uniform state approach for organizing more complete and efficient utilization of the forestry raw material resources throughout the country, by all those who work in the forests, use them for recreational purposes or take advantage of their diverse gifts. The task has been assigned of ensuring coordinated operations by the forestry and timber procurement enterprises and organizations with regard to raising the effectiveness of measures directed towards the restoration of forests in the felling areas, protecting them against fires and also improving the use of productive capital and labor and financial resources.

The plans call for more state control to be exercised over the observance by all ministries, departments, cooperative social enterprises, organizations and institutes and citizens of the established order for the use of forests and the rules for forestry management.

In the decree of the CPSU Central Committee and the USSR Coucnil of Ministers entitled "On Improving the Use of Forestry Raw Material Resources," it is noted that the non-fulfillment of the delivery plans for lumber is seriously restraining the development of a number of branches of the national economy. Not all of the branch's enterprises and organizations are carrying out their operations in a rhythmic manner. The shortcomings noted in connection with raising efficiency have not been eliminated and the lag that developed in the production of the entire nomenclature of products being produced has not yet been overcome. The number of enterprises which are not fulfilling their plans for the production of industrial products, although it has decreased somewhat, still amounts to 6 percent of their overall number. The fulfillment of the product delivery plan, in conformity with economic contracts and orders, is not being ensured. Thus far this year the output sales volume, with contracts being taken into account, has been fulfilled by 98.6 percent, as a result of which the national economy has suffered a shortfall of 10 million rubles worth of output. Not all of the enterprises have fulfilled the socialist obligations which they undertook in connection with raising labor productivity and lowering output production costs. In capital construction, the placing in operation of installations of a production or housing-domestic nature is not being carried out in a timely manner and the construction schedules are being dragged out. The volume of unfinished planning work for Minleskhoz /Ministry of Forestry/ for the Uzbek SSR exceeds by a factor of almost 20 the annual limits for planning-research work.

A strong aspect of the adopted decrees -- concern for the forestry and timber industry personnel. In this regard, the plans call for the carrying out of a number of additional measures aimed at retaining personnel in forestry and the timber industry.

First of all, a new system is being established for issuing a one-time payment for extended service, commencing with the first year of work, in the amount of 10 percent for skilled workers, leading workers, ITR's /engineering and technical workers/ and office workers and 5 percent for the remaining workers. Such payments will be made provided the shipment plan is 50,000 cubic meters annually for mountainous conditions and 60,000 cubic meters for the remaining regions of the country. In the case of smaller volumes, this payment is made to workers at forestry stations and sector workshops taking into account the wood shipment

plan, improvement cuttings and sanitary fellings, provided the overall volume exceeds 10,000 cubic meters annually. This system is being employed for all of the country's well-forested regions and also in the Mari and Udmurt ASSR's and in Gorkiy, Kalinin, Kurgan, Leningrad, Moscow, Novgorod, Novosibirsk, Omsk, Pskov, Chelyabinsk and Yaroslavl oblasts.

At the same time, during the 1st quarter of 1985, a one-time payment is being introduced for extended service depending upon the length of continuous service during 1984.

Subsequently, the social-cultural and domestic conditions for the forestry workers will require our attention and improvements. Thus the decree establishes the task in the annual and five-year plans of allocating capital investments to USSR Gosleskhoz /State Committee for Forestry/ for housing construction, in amounts which will ensure the placing in operation of housing space at the rate of not less than 0.6 square meters per worker.

Forest restoration work is the chief means for creating highly productive forest plantings. Based upon a complex of measures for converting forest cultivation over to a breeding-genetics basis, the task consists of employing industrial technologies, making extensive use of progressive forms for labor organization and wages, giving maximum attention to the specific natural-climatic conditions and the biological characteristics of the wood strains, raising the efficiency of forest production operations substantially and achieving improvements in the quality indicators for forestry work and on the entire territory of the state forestry fund. All measures concerned with forest restoration work must be directed towards achieving the principal final goal as rapidly as possible -- cultivating valuable young stock and raising the productivity of future forests. We must raise the role and responsibility of the chief foresters of all categories, the forestry workers and the technical workers, so as to ensure that they fulfill the obligations entrusted to them.

The autumn-winter season of timber procurements and wood shipments is commencing. This period has always been an important and tense one. During the period that remains, it will be necessary to complete the preparation of the tractors, motor vehicles and workshops. There is a shortage of man-power in a number of oblasts in Russia. A great amount of work must be carried out in connection with enlisting the aid of seasonal workers, creating the necessary production and domestic conditions for them, examining and approving the staff structures for the timber procurement brigades and teams and acquainting them with the operational technology and the industrial safety measures.

The CPSU Central Committee and the Council of Ministers have obligated USSR Minlesbumprom /Ministry of the Timber, Pulp and Paper and Wood Processing Industry/ to ensure stable work by the timber and wood processing industry and forestry and the complete utilization of the reserves and opportunities available for expanding the production of timber products and delivering them to the consumers. The successful implementation of this task, in addition to other factors, will depend upon being able to find new forms for relationships with the branches of the timber complex and examining obsolete habits, views and individual statutes in the interest of ensuring the use of the state approach and harmonious operations with all economic organs. At the same time,

it will be necessary, in light of the decisions handed down during the 26th party congress and subsequent plenums of the CPSU Central Committee, to intensify mass political and organizational work in the labor collectives and to ensure that it is coordinated closely with the production tasks. Importance is attached to raising the effectiveness of the socialist competition, displaying constant concern for improving the working and living conditions of the personnel and retaining the workers and specialists at their posts. Only on this basis will it be possible to achieve improvements in the work of all enterprises and organizations and to ensure that they fulfill their established tasks and socialist obligations for the current year and for the five-year plan as a whole.

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## LESDREVMASH-84 INTERNATIONAL TIMBER TECHNOLOGY EXHIBITION

### Party Official, Ministers Attend

Moscow LESNAYA PROMYSHLENNOST' in Russian 13 Sep 84 p 1

[Article: "In the Name of Peace and Friendship"]

[Text] The official opening of the international exhibition, Lesdrevmash-84, took place on 11 September in the capital's park, Sokol'niki. Gathered on the avenue of flags were members of the exhibition committee, guests, representatives of diplomatic missions in Moscow, workers of ministries and departments, specialists and journalists.

The chairman of the USSR Trade-Industry Pavilion, Ye. P. Pitovranov, gave the floor to the chairman of the organizational committee of the Lesdrevmash-84 international exhibition, the USSR Minister of the Timber, Pulp and Paper and Wood Processing Industry, M. I. Busygin. He noted that in the Soviet Union international exhibits are viewed not only as an important link in establishing and expanding contacts between scientists and specialists of particular spheres of activity, not only as fertile soil for concluding mutually-advantageous commercial agreements between foreign trade organizations of various countries but also and primarily as a possibility for developing and maintaining a spirit of cooperation, mutual understanding and trust between peoples. The minister said that similar exhibitions facilitate the solution of big problems, including global problems, such as the efficient utilization of natural resources, environmental protection and providing all of the people in the world with worthy living conditions. In connection with this one of the most urgent problems involves increasing the effectiveness of the timber, pulp and paper and wood processing industry and all links of the timber complex while maximally meeting the needs of the people for various timber products. At the same time, easing the labor of workers within the timber industry is an important social goal.

The minister emphasized that during the years since the Lesdrevmash-79 exhibition machine building for the timber industry developed at a rapid pace. Significant progressive changes have taken place in international machine building for the timber industry. Every country that produces technology for the needs of the timber complex worked on the development and improvement of a fleet of machines and mechanisms from the point of view of not only its own

conditions but of the needs of the international market as well. This is why in its scale and thematic variety, Lesdrevmash-84 was conceived as an exhibition that would to a certain degree summarize international achievements related to the timber industry sector of the economy.

About 700 firms, enterprises and organizations from 23 countries in the world have over 3,000 exhibits at Lesdrevmash-84. The exhibits reflect, to one degree or another, the basic tendencies in the development of machine building for the timber industry--the transition from the development of individual machines to the creation of systems allowing for complete mechanization of technological processes without the utilization of manual labor. Most of the equipment and technological processes on exhibit meet the highest ergonomic requirements as well as technical and economic standards as concerns conservation of energy, fuel and raw materials.

In the name of the organizational committee the minister expressed certainty that the current exhibition will be interesting and useful in all respects and will provide a new impulse for the fruitful development of international scientific-technical exchanges and for the expansion of trade-economic cooperation between countries.

After this, the deputy chairman of the USSR Council of Ministers, N. V. Talyzin, cut the red ribbon. The Lesdrevmash-84 exhibition was open!

Also participating in the opening ceremonies of the Lesdrevmash-84 exhibition were: I. N. Dmitriyev, director of the Building Department of the CPSU Central Committee; A. I. Zverev, chairman of the USSR State Committee on the Timber Industry; N. G. Bagayev, director of the Department of Affairs Management of the USSR Council of Ministers; N. M. Prilepo, RSFSR Minister of the Timber Industry; M. V. Kuleshov, chairman of the trade union central committee; and other workers of ministries and departments.

There was an officil review of the exhibits in the Sokol'niki complex. The deputy chairman of the USSR Council of Ministers, N. V. Talyziin, the director of the Building Department of the CPSU Central Committee, I. N. Dmitriyev, and workers of ministries and departments and specialists who accompanied them became acquainted with the technology in open stands and visited the pavilions of the USSR, Poland, Sweden, Holland, Italy, the Federal Republic of Germany and of other countries.

On the same day pavilions of the exhibit complex at Krasnaya Presnya were opened for visitors.

## USSR Display Described

Moscow LESNAYA PROMYSHLENNOST' in Russian 13 Sep 84 p 3

[Article by P. Tizengauzen and G. Nadareyshvili: "Everything for Man's Labor"]

[Excerpt] At Lesdrevmash-84, 12 September was the Day of the Enterprises and Organizations of the USSR.

Most of the visitors whom we met during those days at the exhibition expressed admiration of the exhibits. An especially large number of people visited the pavilion where Soviet technology was on exhibit on 12 September, when the Day of the Enterprises and Organizations of the USSR was celebrated. The fact that our country's day was marked first at the exhibition is a mark of respect for a great timber power and for the country that organized the international review of achievements within the timber industry.

Representatives of hundreds of international firms came to the Soviet pavilion on that day. They became acquainted with our machines with interest and conducted lively discussions with specialists. An engineer from Czechoslovakia, Irzhi Pavlichek, told us: "On the stands of the Soviet pavilion today we see the most modern equipment. I think that I will be expressing a generally-held opinion when I say that the Soviet exhibit gives rise to admiration, that it amazes one with its variety."

There really is something to see in the Soviet pavilions. The USSR Exhibit is the largest at Lesdrevmash-84--about 250 enterprises, NII [Scientific Research Institutes], KB [Design Bureaus] and organizations and 37 ministries and departments are presenting over 1,500 exhibits in 23 thematic categories for the most varied branches of the timber complex. The products of enterprises and plants, planning-design organizations and scientific-technical institutes of the main timber regions are represented here.

With all the variety of exhibits, they do have something in common--all of them correspond fully to the slogan of the current exhibition, "Timber Technology for Man." The machines and units developed by our designers include maximal comforts for the working man, significantly decrease the proportion of heavy manual labor and meet the most stringent safety requirements.

Let us look at least at the LP-19A rolling-packing machine, which so appealed to a veteran timber industry worker from Arkhangel'sk. It differs from earlier similar models not only in increased technical possibilities but also in increased comfort. The cab is comfortable, the field of view is good and it has become much easier to drive the machine. The same can be said about other machines as well.

A characteristic feature of the Soviet exhibit is that for the first time equipment and devices for the pulp and paper industry, as well as sample products, were presented. And this is symptomatic--after all, these products are widely utilized in all areas of man's activities, they facilitate the satisfaction of the daily needs of the population and they serve as the material base for the development of culture and the means of mass information. It has been generally recognized that an increase in the standard of living is accompanied by a growth in consumption and expansion of assortment of paper products. In the USSR, for example, a single newspaper printing consists of 160 million copies; the output of industrial and other types of paper is growing constantly. During the last 15 years the production of pulp has increased by a factor of 2.8. At Lesdrevmash-84 specialists were greatly interested in a paper machine forming a multi-layered cardboard on round vacuum-creating mechanisms. This unit produces cardboard that is 70 percent waste paper.

The machine's productivity is 80,000-100,000 tons of cardboard annually. The BP-45A paper-making machine, earmarked for the production of sack paper and with a daily productivity of 320 tons, is also of interest.

The length of a newspaper article will not allow us to discuss in detail even the most interesting Soviet exhibits--there are very many of them. Let us note only that the compact houses of USSR Minlesbumprom [Ministry of Timber, Pulp and Paper and Wood Processing Industry]--attractive, comfortable and with modern domestic furniture--attracted the unwavering attention of all visitors. As one of the visitors said, it would simply be a pleasure to live in one of those houses. That is a high evaluation!

There is another exhibit which, despite its small size, attracts a great deal of attention. This is the Gol'yan-01 device for the biological control of toxicity in industrial sewage. It is earmarked for biological control and for warning the operators of cleaning facilities in industrial enterprises about substandard sewage. The role of unique detectors in this device is played by fish--minnows and perch. This type of device is in operation at the Baykal TsBK [Expansion unknown] and has proven itself well over the last 3 years.

There were interesting exhibits in the divisions, "Machines for Reforestation and Protective Forest Development," "The Wood-Cutting Instrument and Equipment for Preparing it for Work," and "Equipment and Technological Processes for Producing Technological Raw Materials from Low-Quality Wood and Waste Products of Timber Procurement and Wood Processing."

The exhibits in the Soviet section of the exhibition reflect the rapid pace of technical reequipping and development of all branches of the country's timber complex. There can be no doubt that Lesdrevmash-84 will add impetus to this process.

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